Standard & Poor's
Compustat® Xpressfeed
Using the Data

By Standard & Poor's

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Chapter 1
Introduction

Welcome to Standard & Poor's Compustat® Xpressfeed

Standard & Poor's is the world's foremost provider of independent credit ratings, risk evaluation, investment research, indices, data and valuations. For more than 140 years we have played a leading role in providing investors with the independent benchmarks they need to feel confident about their financial decisions.

Compustat Xpressfeed is a data delivery system for Standard & Poor's Compustat® data. As of June 2007, for the U.S. and Canada Xpressfeed offers:

- Coverage for over 14,650 active companies and over 16,950 inactive companies
- Coverage for over 15,700 active securities and over 20,850 inactive securities
- Company fundamental annual data beginning in 1950
- Company restated quarterly data beginning 1962
- Company annual summary data (rolling 10 years from current 10 K)
- Daily market data beginning in 1984*
- Monthly market data beginning in 1962
- Fiscal and calendar presentations of data
- Period data (3 months, 6 months, 9 months, 12 months)
- Period and 12 months moving data for North America quarterly data

As of June 2007, Xpressfeed offers the following International (excluding U.S. and Canadian) data:

- Coverage for over 24,350 active companies and over 10,000 inactive companies
- Coverage for over 25,900 active securities and over 13,250 inactive securities
- Company fundamental annual data beginning in 1988
- Historical semi-annual data beginning in 1996
- Restated semi-annual company data beginning first quarter of 2005
- Historical quarterly company data beginning fourth quarter of 2003
- Restated quarterly company data beginning first quarter of 2005
- Daily market data beginning in 1984*

*Daily market data is not available in Vendor subscriptions.

Xpressfeed also offers:

- Daily updates to Income Statement, Balance Sheet, Cash Flow, Market and supplemental data items
- 20 years of economic data
- Expanded Compustat Historical history with more than 50 years of annual fundamental data and more than 40 years of quarterly fundamental data and prices with an add-on subscription
- Thomson I/B/E/S earnings, cash flow and revenue estimates (requires an add-on subscription)
- Compustat Backtest and Preliminary data
- Industry-specific content
- Utility content
- Pension detail

Standard & Poor's classifies companies as Industrial/Commercial or Financial Services (broker/dealers, banking, insurance, real estate, and other financial services) and collects annual fundamental data in specialized formats containing data items unique to these industries.

Xpressfeed also provides data specific to a constituent population of an index. Examples of index-specific constituent populations include the S&P 1500, 600, 500 and 400.

Uses for Compustat Xpressfeed Data

Compustat Xpressfeed is a valuable research tool that can be used to identify relationships between companies, industries, the market and the economy. Although Xpressfeed is very broad in scope, the following information highlights a few of its financial applications:

Comparative Analysis

Develop spreadsheets to compare a company's profitability, financial risk and growth with that of its competitors.

Corporate Planning

Identify new business opportunities by comparing a company's results with those of corporations with different product and business lines. The ability to screen on Compustat data allows users to focus on specific data to determine whether participation in a potential product or business area would be best accomplished by acquisition, merger or start-up.

Divestiture

Identify potential buyers for operations, divisions or businesses that a company may want to divest and determine another company's ability to purchase.

Portfolio Management

Produce studies of portfolio characteristics (such as risk, return and beta) including comparisons to major market indexes such as the S&P 500 with regard to employee plans.

Merger/Acquisition – Defense

Evaluate a company's vulnerability to takeover. By comparing a company's financial characteristics with others in the same industry (and with companies recently involved in unfriendly takeover attempts), contingency plans can be developed to deal with potential takeovers.

Merger/Acquisition – Offense

Determine financial characteristics that make a candidate desirable with regard to company growth via mergers and acquisitions and then identify companies exhibiting those characteristics. In addition, compute book and market values and identify the most beneficial terms to offer acquisition candidates.

Securities Analysis

Prepare reports with a greater degree of detail and clarity. Users performing company financial and stock performance analyses and company-to-industry comparisons can benefit from the extensive data available in Xpressfeed.

What You Will Find in This Manual

Important: This manual is for use with the Compustat Xpressfeed package schemas introduced by Standard & Poor's in the first half of 2006.

Compustat Xpressfeed is extremely flexible. Both the data framework and data infrastructure facilitate many ways of viewing and using Xpressfeed data. Because of this and because Xpressfeed clients each have their own unique system to load, store and work with Xpressfeed data, Standard & Poor's does not recommend or discuss specific tools for viewing and using Xpressfeed data in this manual. Instead, this manual provides extensive examples that describe how to work with Xpressfeed data in general terms. For example, extraction of a specific data item from a data group can be as simple as exporting all data from the group to a text file and performing a text search for the value of the data item. Your search text will be located in the data record anchored by the data item value that you need. Alternatively, you can use a more sophisticated application designed to extract Xpressfeed data for analysis purposes.

As another example, there are multiple ways to approach sorting Xpressfeed data. Sorting data can be as simple as exporting all the data to a text file, importing the text file to a spreadsheet application and then using the spreadsheet's data sorting feature to sort the data so you can systematically search for the data you seek. As with extracting data, you can also choose to use a more sophisticated application designed to sort Xpressfeed data for analysis purposes. However, no matter which tools and methods you use to work with Xpressfeed data, this manual focuses on the following:

- Retrieving data in different ways for each class of data
- Financial formulas that you can apply to category of data
- Other ways of using the data, such as translating currencies

In addition, in the examples, you will find extensive discussion of which Xpressfeed documentation resource(s) you can use to working with Xpressfeed data most efficiently. The documentation resources you will need to be familiar with to benefit most from information provided by this manual include

- the data item list (in MS Excel format) for the primary package to which you subscribe
- *Compustat Xpressfeed Technical Guide*
- *Compustat Xpressfeed Package Specifications*
- *Compustat Xpressfeed: Understanding the Data*
- the *Compustat Data Guide*
- the balancing models

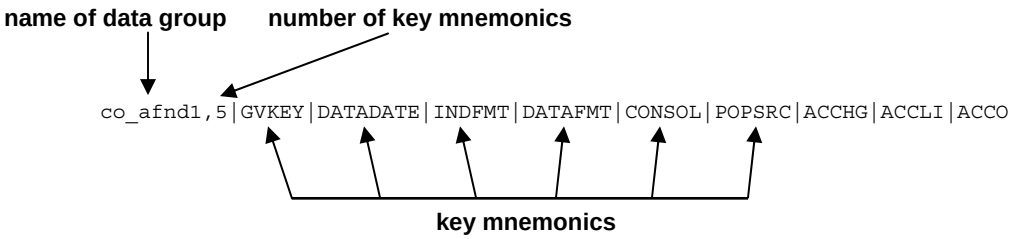
Retrieving Data with Key Mnemonics

The physical framework of Compustat Xpressfeed enables you to retrieve data with key mnemonics. Key mnemonics represent the data items by which all high-level entities and/or data related to them is uniquely identified.

Identifying Key Mnemonics in Data Groups

Each data and reference group* in Compustat Xpressfeed contains one to seven pre-defined key mnemonics that can be used to extract data at different levels of preciseness. The more key mnemonics specified, the narrower the scope of the returned data.

At the beginning of each data group is a header record containing the name of the data group, the key mnemonics, and the mnemonics for the remaining data items in the order in which they will appear in the data record. For example, the beginning of a header record for the Company Annual Fundamental (co_afnd1 or co_afnd2) data group may look like this:



As you can see above, the key mnemonics for the Company Annual Fundamental data group 1 are:

1. GVKEY (Global Company Key)
2. DATADATE (Data Date)
3. INDFMT (Industry Format)
4. DATFMT (Data Format)
5. CONSOL (Level of Consolidation)
6. POPSRC (Population Source)

It is possible for data groups to have as many as 6 key mnemonics. The more key mnemonics, the easier it is to retrieve specific data.

Identifying Key Mnemonics in Reference Groups

Each reference group in Compustat Xpressfeed contains one or two pre-defined key mnemonics, as well as the codes and descriptions that are used to classify and/or identify high-level entities. Each reference code in Xpressfeed is represented by a *code* reference item and a corresponding *description* reference item that describes the code where appropriate. All reference groups in Xpressfeed use the code reference item as their permanent identifier and a few reference groups employ the description reference item or another reference item as the primary identifier.

Order of Key Mnemonics in Data Groups

A data group can have many key mnemonics associated it, and the order in which they appear in the header record determines the level of importance for each key mnemonic:

- The first key mnemonic in the header record is often the permanent identifier (a.k.a. key) for the high-level entity referred to in the data record. An example of a permanent identifier is the Global Company Key (GVKEY). Every company in Xpressfeed is assigned a unique GVKEY.

- The second key mnemonic acts as the primary identifier (a.k.a. key)for the data records in the data group. The primary identifier might identify a specific issue or indicate data for a particular fiscal period.
- The remaining key mnemonics act as secondary identifiers (a.k.a. keys), which help further narrow down your search for specific data.

You can search with different combinations of the key mnemonics, but the more key mnemonics used, the more specific the data retrieved will be.

Order of Key Mnemonics in Reference Groups

A reference group has one or two pre-defined key mnemonics and the order by which they appear in the reference group determines the significance of each key mnemonic:

- The first reference key mnemonic is always the code reference item, which acts as the permanent identifier (a.k.a. key) in the reference group.
- Any additional key mnemonic acts as a primary identifier (a.k.a. key), which helps further narrow down your search for specific data.

Retrieving Data for Specific Data Items

Extracting the data from specific data items enables you to focus your search much more than extracting data with key mnemonics at the data group level. For example, if you searched the Company (company) data group by a value for its key mnemonic GVKEY, you would retrieve the entire data record for the company represented by that GVKEY. The record could contain all the data items in that data group for the company. However, you can find more specific data in the Company data group by searching, for example, on the Company name (CONM). The search retrieves only the company name and GVKEY.

Note: Most of the time you will have to extract the data from a data group by key mnemonics and then search within the data you extracted for the specific data item value(s) you seek.

Financial Formulas and Calculations

Standard & Poor's has developed a number of pre-defined formulas and calculations for Compustat® Xpressfeed data. These commonly used formulas are by no means all-inclusive; rather, they offer a starting point upon which you can expand.

Data availability depends upon when a company was added to the database and/or when the data item itself was first added to the database; therefore, not all of the calculations can be applied to all companies, securities, or indices. However, the calculations are designed to help you obtain a basic understanding of Compustat Xpressfeed data items, their definitions, and their usage.

Most formulas in this manual are presented in this format:

Description	Xpressfeed Mnemonic(s)
A textual description of the formula will be presented in the left column.	The formula will be presented in the right column using the mnemonics of Xpressfeed items.

Terminology

The following is a list of terms you might encounter in this manual:

Table 1. Vocabulary used in this manual

Data	Company, index or security information.
Data Group	A set of data records for a category of data.
Data Item	A single field or the result of combining multiple fields in a calculation.

Data Repository	The location where you load and store Compustat data in your computer system.
Delivery Files	The Full and Transactional Files, collectively, because their common basic function is to deliver Compustat data to Xpressfeed clients.
Field	Space within a database that is allocated for a particular piece of data.
File	A set of records, transactions, or data groups
Financial Reports	Companies' annual and quarterly reports to shareholders, as well as 10-K, 10-Q and other reports filed with the Securities and Exchange Commission.
Financial Statements	Companies' balance sheets, income statements, and statement of cash flow.
Full Files	The delivery files containing all the data that your Xpressfeed subscription provides, which are intended for initializing or reloading Compustat data in your system.
Header Record	A record at the beginning of a data file that defines the data contents for the subsequent data records.
High-Level Entity	The level of data with the broadest and most general scope within a data group. Companies, currencies, indexes and securities are examples of high-level entities.
Item-level	The level of data with the narrowest/least general scope within a data record.
Mnemonic	An alphanumeric abbreviation of the data item name
Record	A collection of data items. When used as a means of delivering updated data, a record will update an existing record as a whole.
Reference Group	A data group with only reference data in it.
Package	A set of data groups.
Package-level	The level of data where the data is presented/discussed as a collection of data groups.
Transaction	An update to specific fields or data items within a record.
Transactional Files	Delivery files that contain item-level updates and are intended for reflecting changes to the initial data loaded from the Full files. Transactional files contain updates to multiple data groups and multiple transactional files can be produced during a production cycle.

Customer Support

Standard & Poor's is committed to quality products and customer service. Any time you have questions about Compustat Xpressfeed, you will find our Customer Support Center to be an important resource. Staffed by a team of dedicated professionals, our Customer Support Center is available to assist you Monday – Friday between 6 a.m. and 6 p.m. Mountain Time.

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Chapter 2
Company Data

Company data identifies, defines, and describes the companies represented in Compustat Xpressfeed, as well as reports the companies' historical and current financial information from various points of view. This chapter demonstrates how you can retrieve company data from Xpressfeed for your financial analysis.

Retrieving Company Data with Key Mnemonics

Each company data group has pre-defined key mnemonics. *Compustat Xpressfeed Technical Guide* contains the most current list of all Xpressfeed data groups and the key mnemonics defined for them.

Examples of the company key data items in Xpressfeed primary packages include the following items that are listed by name, mnemonic and definition:

Table 2. Examples of company key data items

Key Data Item	Mnemonic	Definition
Data Date	DATADATE	This item indicates the time period to which each item applies. For example, the Data Date for a Company Annual item (co_afnd1) represents the fiscal period end date.
Global Company Key	GVKEY	This item uniquely identifies all companies in the database. GVKEY can be used in place of company tickers, CUSIPs or SEDOLs.
Inventory Valuation Code	INVVAL	This item is a code that represents the method used to value inventory.
Officer Code(s)	OFCD	This item contains codes that represent the officer(s) of a company. There can be up to four officer codes per company.
Officer ID	OFID	This number uniquely identifies a company officer. The number remains consistent even if a person holds more than one officer title.

Key Data Item	Mnemonic	Definition
Population Source	POPSRC	This item indicates the geographical population source of the data. D = Domestic (North America: U.S. and Canadian companies) I = International (non-U.S. and non-Canadian companies) POPSRC can be used to distinguish between ADR and native data presentations.

Each key data item is represented by a key mnemonic. See *Compustat Xpressfeed Technical Guide* for a list of key mnemonics in each Compustat Xpressfeed package.

Examples of the company key mnemonics in a primary package include the following:

Table 3. Company key mnemonics

		Key Mnemonics		
Data Group	Data Group Description	Permanent Identifier	Primary Identifier	Secondary Identifier(s)
company	Companies	GVKEY		
co_aacctchg	Company Annual Accounting Adoption	GVKEY	DATADATE	INDFMT DATAFMT CONSOL POPSRC RANK
co_aaudit	Company Auditor Data	GVKEY	DATADATE	INDFMT DATAFMT CONSOL POPSRC RANK
co_adesind	Company Annual Descriptor – Industry Format Data	GVKEY	DATADATE	INDFMT DATAFMT CONSOL POPSRC
co_adjfact	Company Cumulative Adjustment Factors Data	GVKEY	EFFDATE	
co_afnd1	Company Annual Item Industry Format Data (A-L)	GVKEY	DATADATE	INDFMT DATAFMT CONSOL POPSRC
co_afnd2	Company Annual Item Industry Format Data (M-Z)	GVKEY	DATADATE	INDFMT DATAFMT CONSOL POPSRC
co_afnddc1	Company Annual Item Industry Format Data Code (A-L)	GVKEY	DATADATE	INDFMT DATAFMT CONSOL POPSRC
co_afnddc2	Company Annual Item Industry Format Data Code (M-Z)	GVKEY	DATADATE	INDFMT DATAFMT CONSOL POPSRC

		Key Mnemonics		
Data Group	Data Group Description	Permanent Identifier	Primary Identifier	Secondary Identifier(s)
co_afntind (to be discontinued in the future)	Company Annual Fundamental Footnotes	GVKEY	DATADATE	INDFMT DATAFMT CONSOL POPSRC
co_afntind1	Company Annual Fundamental Industry Format Footnotes beginning with A-L	GVKEY	DATADATE	INDFMT DATAFMT CONSOL POPSRC
co_afntind2	Company Annual Fundamental Industry Format Footnotes beginning with M-Z	GVKEY	DATADATE	INDFMT DATAFMT CONSOL POPSRC
co_ainvval	Inventory Evaluation Data	GVKEY	DATADATE	INDFMT DATAFMT CONSOL POPSRC RANK
co_amkt	Company Annual Market data	GVKEY	DATADATE	CFFLAG POPSRC CURCD
co_fortune	Company Fortune Ranking Data	GVKEY	DATADATE	POPSRC
co_hgic	GICS History	GVKEY	INDTYPE	INDFROM
co_iacctchg	Company Interim Accounting Adoption	GVKEY	DATADATE	INDFMT CONSOL POPSRC FYR DATAFMT RANK
co_iaudit	Company Interim Auditors	GVKEY	DATADATE	INDFMT CONSOL POPSRC FYR DATAFMT RANK
co_idesind	Company Interim Descriptors Data	GVKEY	DATADATE	INDFMT CONSOL POPSRC FYR DATAFMT
co_ifndq	Company Quarterly Item Industry Format	GVKEY	DATADATE	INDFMT CONSOL POPSRC FYR DATAFMT
co_ifndsa	Company Semiannual Item Industry Format	GVKEY	DATADATE	INDFMT CONSOL POPSRC FYR DATAFMT

Data Group	Data Group Description	Key Mnemonics		
		Permanent Identifier	Primary Identifier	Secondary Identifier(s)
co_ifndytd	Company Year-to-Date Item Industry Format	GVKEY	DATADATE	INDFMT CONSOL POPSRC FYR DATAFMT
co_ifntq	Company Quarterly Item Industry Format Footnotes	GVKEY	DATADATE	INDFMT CONSOL POPSRC FYR DATAFMT
co_ifntsa	Company Semiannual Item Industry Format Footnotes	GVKEY	DATADATE	INDFMT CONSOL POPSRC FYR DATAFMT
co_ifntytd	Company Year-to-Date Item Industry Format Footnotes	GVKEY	DATADATE	INDFMT CONSOL POPSRC FYR DATAFMT
co_imkt	Company Quarterly Market Data	GVKEY	DATADATE	CFFLAG POPSRC CURCD YEM
co_industry	Company Industry Code	GVKEY	DATADATE	CONSOL POPSRC
co_mthly	Company Monthly	GVKEY	DATADATE	
co_offtitl	Company Officers	GVKEY	OFID	OFCD

As discussed in *Compustat Xpressfeed: Understanding the Data,* Xpressfeed data is sorted into data groups according to a data infrastructure based on data classes. There are four company data classes in Xpressfeed:

- General Company
- Company Descriptors
- Company Fundamental
- Company Supplemental

In this chapter, we will show you how to extract each of these classes of data using key mnemonics in hypothetical scenarios.

Extracting General Company Data

Scenario: You want to general background for an unfamiliar company before you delve into its financial information. *Compustat Xpressfeed: Understanding the Data* tells you that general company data can provide this information and that this general company data is located in the Company (company) data group. However, according to the most current list of key mnemonics (which are listed in the *Compustat Xpressfeed Technical Guide*), you need to know the company's Global Company Key (GVKEY) to extract data from the Company data group but you only know the company's name, which is BP PLC. Consequently, you must first figure out BP PLC's GVKEY.

Your extraction of the GVKEY from the Company data group can be as simple as exporting all data from the group to a text file and performing a text search for "BP PLC." Your search text will be located in the data record anchored by the GVKEY that you need. Alternatively, you can use a more sophisticated application designed to extract Xpressfeed data for analysis purposes. No matter which method of extraction you choose, you will learn that the GVKEY for BP PLC is **002410** and you can now use it as the key mnemonic for the Company (company) data group.

To extract the general company data that you need, specify:

- GVKEY = 002410
- Data Group = company

The data you extract is likely to include the following information:

Table 4. Examples of extracted general company data

Mnemonic	Data Item	Value	Description
BUSDESC	Business Description		*Operates one of the world's largest petroleum and petrochemicals groups. Main activities are the exploration and production of crude oil and natural gas; refining, marketing, supply and transportation; and manufacturing and marketing of petrochemicals.*
FIC	ISO Country Code –Incorporation	GBR	*Great Britain*
FYRC	Fiscal Year-end Month – Current	12	*December*
GSECTOR	GICS Sectors	10	*Energy*
GGROUP	GICS Groups	1010	*Energy*
GIND	GICS Industries	101020	*Oil & Gas Equipment & Services*
GSUBIND	GICS Sub-Industries	10102010	*Integrated Oil & Gas*
LOC	ISO Country Code – Headquarters	GBR	*Great Britain*
NAICS	NAICS Code	324110	*Petroleum Refineries*
SIC	SIC Code	2911	*PETROLEUM REFINING*
SPCSECCD	S&P Economic Sector Code	935	*Energy*
SPCINDCD	S&P Industry Sector Code	390	*Oil (International Integrated)*

Now you know that BP PLC is a leading global petroleum company based in Great Britain.

Extracting Company Descriptor Data

Scenario: Before looking at the company's fundamental data, you want to know more about how its fundamental data is presented. Company descriptor data can provide this information to you and that company descriptor data is located in the Company Annual Descriptor (co_adesind) data group (see *Compustat Xpressfeed: Understanding the Data* manual). According to the most current list of key mnemonics (which are listed in the *Compustat Xpressfeed Technical Guide*), you need to know the company's Global Company Key (GVKEY), the Data Date (DATADATE) of the data you want to analyze, the Population Source (POPSRC) of the company, the Industry Format (INDFMT), the Data Format (DATAFMT), the Level of Consolidation (CONSOL), and the Fiscal Year-End Month (FYR) to extract data from that data group with key mnemonic.

For example, to retrieve company fundamental data for BP PLC, specify:

- GVKEY = 002410
- DATADATE = 20021231 (data for December 2006 fiscal year end)
- POPSRC = D
- Data Group = co_adesind
- INDFMT = INDL
- DATAFMT = STD
- CONSOL = C
- FYR = 12

You will likely extract data that includes the following information:

Table 5. Examples of extracted company descriptor data

Mnemonic	Data Item	Value	Description
ACCTSTD	Accounting Standard	DU	Domestic standards generally in accordance with United States GAAP
BSPR	Balance Sheet Presentation	--	--
FYR	Fiscal Year-end Month	12	December
ISMOD	Income Statement Model Number	1	• Cost of Sales Format • Cost of Goods Sold *plus* Selling, General and Administrative Expense *plus* Operating Expense – Total – Other *equals* Operating Expense – Total • **Canada, United States** Operating Expense – Total – Other contains a *Not Available* data code
SCF	Cash Flow Format	7	Statement of Cash Flows
SRC	Source Document	5	10-K/20-F
UPD	Update Code	3	Data is final for the reporting period

Now that you have this information you can look at the company's annual or quarterly fundamental data.

Extracting Company Fundamental Data

Scenario: Annual fundamental data, including income statement information, is located in the Company Annual (co_afnd1 and co_afnd2) data groups (see the *Compustat Xpressfeed: Understanding the Data* manual). To query this data, you need to know the company's Global Company Key (GVKEY), the Data Date (DATADATE) of the data you want to look at, the Population Source (POPSRC) that the company is classified within, the Industry Format (INDFMT), the Data Format (DATAFMT), the Level of Consolidation (CONSOL), and the Fiscal Year-End Month (FYR) .

For example, to retrieve company fundamental data for BP PLC, specify:

- GVKEY = 002410
- DATADATE = 20021231
- POPSRC = D
- Data Group = co_afnd1
- INDFMT = INDl
- DATAFMT = STD
- CONSOL = C
- FYR = 12

You will likely extract data that includes the following information:

Table 6. Examples of extracted company fundamental data

Mnemonic	Data Item	Value
CAPX	Capital Expenditures	12049
COGS	Cost of Sales	148087
DO	Discontinued Operations	0
DP	Depreciation	10401
DV	Cash Dividends	5264
DVP	Cash Preferred Div	2
FINCF	Financing Activities	(5083)
IB	Net Income	6845
IVNCF	Investing Activities	(10763)
MII	Noncontrolling Interest (Income Account)	77
PI	Pretax Income	11264
REVT	Revenue – Total	178721
TXT	Total Taxes	4342
XI	Extra Items	0
XINT	Interest Expense	1379
XSGA	SG&A	11590

The Company Annual (co_afnd1 and co_afnd2) data groups contain over 600 fundamental data items. As previously stated, data availability for a company depends upon when the company was added to the database and when the data item was added. If you would like to extract data by financial statement, you will need to specify each data item from which you want to extract data.

Balancing Models can be downloaded from Standard & Poor's Compustat website, **http://www.compustat.com**, and are your best source for compiling a comprehensive list of which fundamental data items are included in each financial statement.

Extracting Company Supplemental Data

Scenario: If the fundamental data you retrieved does not tell you what you want to know about BP PLC's overall stability, the supplemental data might be able to help you. Supplemental financial data is obtained from the financial statement notes, exhibits and schedules in the financial shareholder reports and financial reports filed with the SEC. Supplemental data is located in the same data groups as fundamental data is (see the *Compustat Xpressfeed: Understanding the Data* manual). Consequently, the key mnemonics you need to extract data from those data groups are the same as they are for fundamental data. The annual fundamental data you retrieved for BP PLC on December 31, 2002, might have included the following information:

Table 7. Examples of extracted company supplemental data

Mnemonic	Data Item	Value
DVC	Dividends – Common/Ordinary	5373
DVT	Dividends – Total	5375
EBIT	Earnings Before Interest and Taxes	9284
GDWL	Goodwill	10867

If you would like to extract only supplemental data, you will need to specify each data item from which you want to extract data. Examples of supplemental data items found in the *Compustat Xpressfeed: Understanding the Data* manual can assist you in compiling a listing of supplemental data items.

Retrieving Company Data for Specific Data Items

There will be many reasons that you will want to extract data for specific data items including those mentioned earlier in this chapter and others reasons such as:

- distinguishing between a company's domicile and incorporation location
- identifying companies with sales greater than 1 billion U.S. dollars

Distinguishing Between Domicile and Incorporation Country and State

To retrieve data that identifies companies by domicile or incorporation location, you need to know what class of data contains such information. *Compustat Xpressfeed: Understanding the Data* explains that general company data uniquely identifies and defines companies and provides examples of data items in the general company class of data. Those examples include location-related data items.

General company data is located in the Company (company) and Officer Title (co_offtitl) data groups (see *Compustat Xpressfeed: Understanding the Data*). For a definitive list of data items in the Company (company) data group, look at the data item list applicable to the packages in your subscription. For example, the Global Data Item List shows the Company (company) data group contains the following data items that define where companies are located:

Table 8. Examples of location-related data

Data Item	Mnemonic
Address Line 1	ADD1
Address Line 2	ADD2
Address Line 3	ADD3
Address Line 4	ADD4
City	CITY
State/Province	STATE
Postal Code	ADDZIP
ISO Country Code – Headquarters	LOC
State/Province of Incorporation Code	INCORP
ISO Country Code – Incorporation	FIC

The location where a company establishes permanent residence for legal obligations, such as filing taxes, is the company's domicile location. (A company must have a recognized place of residence under law in order to file taxes.) The location where a company files articles of incorporation for the purpose of documenting the creation of a corporation is the company's incorporation location.

Companies are often domiciled and incorporated in different locations and therefore, Xpressfeed distinguishes between the two with different data items. The data items definitions tell you if the data item is related to domicile or incorporation location. Data item definitions are available in the *Compustat Data Guide*. For example, according to their data definitions, the domicile and incorporation location-related data items in the Company (company) data group are as follows:

Table 9. Company domicile and incorporation location-related data items

Data Item	Mnemonic	Related to
Address Line 1	ADD1	Domicile Location
Address Line 2	ADD2	Domicile Location

Data Item	Mnemonic	Related to
Address Line 3	ADD3	Domicile Location
Address Line 4	ADD4	Domicile Location
City	CITY	Domicile Location
State/Province	STATE	Domicile Location
Postal Code	ADDZIP	Domicile Location
ISO Country Code – Headquarters	LOC	Domicile Location
State/Province of Incorporation Code	INCORP	Incorporation Location
ISO Country Code – Incorporation	FIC	Incorporation Location

Identifying Companies by Domicile Country

The *Compustat Data Guide* stipulates that the domicile country of each company is defined by ISO country codes.

If you want to know which companies are domiciled in a specific country, you can extract all data from the Company (company) data group and then sort the data by the ISO Country Code – Headquarters (LOC) data item. Sorting the data can be as simple as exporting all the data you retrieved with key mnemonics to a text file, importing the text file to a spreadsheet application and then using the application's data sorting feature to sort the data by LOC. You can also use a more sophisticated application designed to extract and sort Xpressfeed data.

No matter which tool or method you use to extract the data, if the country you are interested in is Botswana (BWA), you will learn that the following 16 companies are domiciled in Botswana:

Table 10. Examples of retrieved domicile country information

GVKEY	Company Name (CONM)	LOC
258799	ABC HOLDINGS	BWA
242319	BARCLAYS BANK BOTSWANA LTD	BWA
206476	BOTSWANA INSURANCE HLDGS LTD	BWA
220448	BOTSWANA RST LTD	BWA
211970	ENGEN (BOTSWANA) LTD	BWA
206477	FIRST NATL BANK BOTSWANA LTD	BWA
206478	KGOLO YA SECHABA	BWA
211998	METRO SEFALANA CAS	BWA
258798	MICRO PROVIDENT BOTSWANA	BWA
212010	REAL ESTATE DEV CO	BWA
258341	RPC DATA	BWA
212016	SECHABA BREWERY HOLDINGS LTD	BWA
206480	SECHABA INV	BWA
211982	SECURICOR BOTSWANA LIMITED	BWA
206481	SEFALANA HDGS	BWA
244400	STD CHARTERED BANK BOTSWANA	BWA

Identifying Companies by Incorporation Country

The *Compustat Data Guide* also tells you that the country of incorporation for companies is defined by ISO country codes.

If you want to know which companies are incorporated in a specific country, you can extract all data from the Company (company) data group and then sort the data by the ISO Country Code – Incorporation (FIC) data item. As with the domicile country, sorting the data can be as simple as exporting all the data you retrieved with key mnemonics to a text file, importing the text file to a spreadsheet application and then using the application's data sorting feature to sort the data by FIC. You can also use a more sophisticated application designed to extract and sort Xpressfeed data.

No matter which tool or method you use to extract the data, if the country you are interested in is Botswana (BWA), you will learn that the following 13 companies were incorporated in Botswana:

Table 11. Examples of retrieved incorporation country information

GVKEY	Company Name (CONM)	FIC
242319	BARCLAYS BANK BOTSWANA LTD	BWA
206476	BOTSWANA INSURANCE HLDGS LTD	BWA
220448	BOTSWANA RST LTD	BWA
211970	ENGEN (BOTSWANA) LTD	BWA
206477	FIRST NATL BANK BOTSWANA LTD	BWA
206478	KGOLO YA SECHABA	BWA
211998	METRO SEFALANA CAS	BWA
212010	REAL ESTATE DEV CO	BWA
212016	SECHABA BREWERY HOLDINGS LTD	BWA
206480	SECHABA INV	BWA
211982	SECURICOR BOTSWANA LIMITED	BWA
206481	SEFALANA HDGS	BWA
244400	STD CHARTERED BANK BOTSWANA	BWA

Identifying Companies by Domicile State

The *Compustat Data Guide* stipulates that the domicile state of each company is defined by State/Province codes.

The process to identify the domicile state is similar to the process of finding the domicile country or country of incorporation. In the case of identifying the domicile state, you use the State/Province data item. For example, you can extract all data from the Company (company) data group and then sort the data by the State/Province (STATE) data item. Sorting the data can be as simple as exporting all the data you retrieved with key mnemonics to a text file, importing the text file to a spreadsheet application and then using the application's data sorting feature to sort the data by STATE. You can also use a more sophisticated application designed to extract and sort Xpressfeed data.

No matter which tool or method you use to extract the data, if the state you are interested in is Hawaii (HI), you will learn that the following 40 companies are domiciled in Hawaii:

Table 12. Examples of retrieved domicile state information

GVKEY	Company Name (CONM)	STATE
001254	ALEXANDER & BALDWIN INC	HI
001325	ALOHA INC	HI
004708	BANCWEST CORP	HI
002005	BANK OF HAWAII CORP	HI
002052	BARNWELL INDUSTRIES	HI
002385	BREWER (C.) & CO LTD	HI
029657	CASTLE GROUP INC/UT	HI
017654	CB BANCSHARES INC	HI

GVKEY	Company Name (CONM)	STATE
065186	CEATECH USA INC	HI
016705	CENTRAL PACIFIC FINANCIAL CP	HI
119095	CHEAP TICKETS INC	HI
003621	CROWN CORP	HI
012575	CYANOTECH CORP	HI
003965	DILLINGHAM CORP	HI
012923	FP INDUSTRIES INC	HI
004516	FP INDUSTRIES INC-OLD	HI
020885	GLOBAL VENTURE CORP	HI
005398	HAL INC	HI
029394	HAWAII LAND & FARMING CO INC	HI
005525	HAWAIIAN ELECTRIC CO	HI
005526	HAWAIIAN ELECTRIC INDS	HI
060902	HAWAIIAN HOLDINGS INC	HI
064763	HAWAIIAN NATURAL WATER INC	HI
005741	HOSOI GARDEN MORTUARY INC	HI
005727	HOUSE OF ADLER INC	HI
005925	INDIAPORTS INC	HI
006017	INTER ISLAND RESORTS LTD	HI
016897	INTERNATIONAL HLDG CAP CORP	HI
006164	INVESTORS FINANCE INC	HI
005411	KUAN CORP	HI
007117	MAUI LAND & PINEAPPLE CO	HI
023620	MERA PHARMACEUTICALS INC	HI
013550	ML MACADAMIA ORCHARDS -LP	HI
013454	MOLOKAI RANCH LTD	HI
008271	PACIFIC INTL SERVICES CORP	HI
008279	PACIFIC RESOURCES INC	HI
022265	PIONEER FED BANCORP INC	HI
011990	PRINCEVILLE CORP	HI
025082	SCHULER HOMES INC -CL A	HI
016487	WALL STREET FINANCIAL CORP	HI

Identifying Companies by Incorporation State

The *Compustat Data Guide* stipulates that the incorporation state of each company is defined by State/Province codes.

The process to identify the incorporation state is similar to the process of finding the domicile country or country of incorporation. In the case of identifying the incorporation state, you use the State/Province of Incorporation data item. For example, you can extract all data from the Company (company) data group and then sort the data by the State/Province of Incorporation Code (INCORP) data item. Sorting the data can be as simple as exporting all the data you retrieved with key mnemonics to a text file, importing the text file to a spreadsheet application and then using the application's data sorting feature to sort the data by INCORP. You can also use a more sophisticated application designed to extract and sort Xpressfeed data.

No matter which tool or method you use to extract the data, if the state you are interested in is Hawaii (HI), you will learn that the following 19 companies were incorporated in Hawaii:

Table 13. Examples of retrieved incorporation state information

GVKEY	Company Name (CONM)	INCORP
001222	ALA MOANA HAWAII PROPERTIES	HI
001254	ALEXANDER & BALDWIN INC	HI

GVKEY	Company Name (CONM)	INCORP
001599	AMFAC INC	HI
027900	CASTLE & COOKE HOMES INC	HI
061780	CASTLE & COOKE INC	HI
017654	CB BANCSHARES INC	HI
016705	CENTRAL PACIFIC FINANCIAL CP	HI
005398	HAL INC	HI
005525	HAWAIIAN ELECTRIC CO	HI
005526	HAWAIIAN ELECTRIC INDS	HI
064763	HAWAIIAN NATURAL WATER INC	HI
005741	HOSOI GARDEN MORTUARY INC	HI
016897	INTERNATIONAL HLDG CAP CORP	HI
006164	INVESTORS FINANCE INC	HI
007117	MAUI LAND & PINEAPPLE CO	HI
013454	MOLOKAI RANCH LTD	HI
008279	PACIFIC RESOURCES INC	HI
008281	PACIFIC SILVER CORP	HI
022265	PIONEER FED BANCORP INC	HI

Identifying Companies with Sales Greater than 1 billion U.S. dollars

To retrieve a set of companies with sales greater than 1 billion U.S. dollars, there are several pieces of information that would be helpful. It is important to know the class of data that contains this information; the data definition for Sales/Turnover; and the data group that Sales/Turnover is included in..

- The Sales/Turnover - Net (SALE) data item is classified as a fundamental data item. The *Compustat Xpressfeed: Understanding the Data* manual provides examples of data items in the company fundamental class of data and the Sales/Turnover (Net) data item is included in those examples.
- The *Compustat Data Guide* states that Sales/Turnover (SALE) represents gross sales (the amount of actual billings to customers for regular sales completed during the period) reduced by cash discounts, trade discounts, and returned sales and allowances for which credit is given to customers. The data definition also indicates that this item is scaled in millions. For example the 1999 annual sales for GM is 173215.000, or $173, 215 billion dollars.
- The data item list will tell you that the Sales/Turnover (SALE) data item is located in the Company Annual (co_afnd2) data group.

All this information enables you to be better prepared to retrieve the data that identifies companies with sales greater than 1 billion U.S. dollars.

Armed with the information that you learned above, you can extract all data from the Company Annual (co_afnd2) data group and then sort the data by the Sales/Turnover (SALE) data item. Sorting the data can be as simple as exporting all the data you retrieved with key mnemonics to a text file, importing the text file to a spreadsheet application and then using the application's data sorting feature to sort the data by SALE. You can also use a more sophisticated application designed to extract and sort Xpressfeed data.

No matter which tool or method you use to extract the data, you will find that 1313 U.S. companies reported sales greater than 1 billion for the 2002 fiscal year, with Gemstar – TV Guide International (GVKEY = 062261) reporting the lowest gross sales of $1001.391(1 billion, 1 million, and 391 thousand dollars) and General Motors Corporation (GVKEY = 005073) reporting the highest gross sales of $184214.000 (184 billion, 214 million dollars).

Formulas and Calculations for Company Data

Standard & Poor's has developed a number of pre-defined formulas and calculations for company data. These commonly used formulas are by no means all-inclusive; rather, they offer a starting point upon which you can expand.

The formulas and calculations included in this chapter pertain to:

- Statements of Changes in Financial Position (Total in Millions)
- Statements of Changes in Financial Position (per Share)
- Income Statement (Total in Millions)
- Income Statement (per Share)
- Operating Margins
- Balance Sheet (Total $ Millions)
- Balance Sheet (per Share)
- Retained Earnings Statement (Total in Millions)
- Turnover Ratios
- Rates of Return
- Capitalization Ratios
- Criteria of Financial Soundness
- Management Decision Statistics

Note: The formula will be presented in the right column using the Xpressfeed data item mnemonics.

Annual Data

Many of the data items used in the financial formulas for annual data below are located in the Company Annual Fundamental (co_afnd1 or co_afnd2) data groups.

Statements of Changes in Financial Position (Total in Millions)

Cash Flow (in Millions)

Definition 1	
Income Before Extraordinary Items (Cash Flow) *plus* Depreciation and Amortization	IBC + DPC
Definition 2	
Income Before Extraordinary Items (Cash Flow) *plus* Depreciation and Amortization *plus* Deferred Taxes *plus* Equity in Net Loss (Earnings) *plus* Extraordinary Items and Discontinued Operations *plus* Noncontrolling Interest (Income Account)	IBC + DPC + TXDC + ESUBC + XIDOC + MII
Definition 3	
Income Before Extraordinary Items (Cash Flow) *plus* Depreciation and Amortization *plus* Deferred Taxes *plus* Equity in Net Loss (Earnings) (Statement of Cash Flows) *plus* Extraordinary Items and Discontinued Operations	IBC + DPC + TXDC + ESUBC + XIDOC

Statements of Changes in Financial Position (per Share)

Capital Expenditures

Capital Expenditures (Statement of Cash Flows) *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	CAPX/(CSHPRI ***** AJEX)

Cash Flow

Definition 1	
(Income Before Extraordinary Items (Cash Flow) *plus* Depreciation and Amortization (Statement of Cash Flows)) *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(IBC +DPC)/(CSHPRI ***** AJEX)
Definition 2	
(Income Before Extraordinary Items (Cash Flow) *plus* Depreciation and Amortization (Statement of Cash Flows) *plus* Deferred Taxes (Statement of Cash Flows) *plus* Equity in Net Loss (Earnings) (Statement of Cash Flows) *plus* Extraordinary Items and Discontinued Operations (Statement of Cash Flows) *plus* Noncontrolling Interest (Income Account)) *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(IBC + DPC + TXDC + ESUBC + XIDOC + MII)/(CSHPRI ***** AJEX)
Definition 3	
(Income Before Extraordinary Items (Cash Flow) *plus* Depreciation and Amortization (Statement of Cash Flows) *plus* Deferred Taxes (Statement of Cash Flows) *plus* Equity in Net Loss (Earnings) (Statement of Cash Flows) *plus* Extraordinary Items and Discontinued Operations (Statement of Cash Flows)) *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(IBC + DPC + TXDC + ESUBC + XIDOC)/(CSHPRI ***** AJEX)

Equity in Earnings per Share

Equity in Net Loss (Earnings) (Statement of Cash Flows) *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	ESUBC/(CSHPRI ***** AJEX)

Income Statement (per Share)

Cash Flow (in Millions)

Income Before Extraordinary Items *plus* Depreciation and Amortization	IB + DP

Preferred Dividend Coverage

Income Before Extraordinary Items *divided by* Dividends – Preferred	IB/DVP

Tax Rate

Income Taxes – Total *divided by* Pretax Income	(TXT/PI) *** 100**

Income Statement (per Share)

Cash Flow

(Income Before Extraordinary Items *plus* Depreciation and Amortization] *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(IB + DP)/(CSHPRI * AJEX)

Depreciation and Amortization

Depreciation and Amortization *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	DP/(CSHPRI * AJEX)

Discontinued Operations

Discontinued Operations *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	DO/(CSHPRI * AJEX)

Earnings per Share (Diluted)

Excluding Extraordinary Items	
Earnings per Share (Diluted) – Excluding Extraordinary Items *divided by* Adjustment Factor (Cumulative) by Ex-Date	EPSFX/AJEX
Including Extraordinary Items	
Earnings per Share (Diluted) – Including Extraordinary Items *divided by* Adjustment Factor (Cumulative) by Ex-Date	EPSFI/AJEX

Earnings per Share (Basic)

Excluding Extraordinary Items	
Earnings per Share (Basic) – Excluding Extraordinary Items *divided by* Adjustment Factor (Cumulative) by Ex-Date	EPSPX/AJEX
Including Extraordinary Items	
Earnings per Share (Basic) – Including Extraordinary Items *divided by* Adjustment Factor (Cumulative) by Ex-Date	EPSPI/AJEX

Equity in Earnings

Equity in Earnings *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	ESUB/(CSHPRI * AJEX)

Extraordinary Items

Extraordinary Items *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	XI/(CSHPRI * AJEX)

Extraordinary Items and Discontinued Operations

Extraordinary Items and Discontinued Operations *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	XIDO/(CSHPRI * AJEX)

Interest Expense

Interest Expense *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	XINT/(CSHPRI * AJEX)

Labor and Related Costs

Labor and Related Expenses *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	XLR/(CSHPRI * AJEX)

Nonoperating Income (Expense)

Nonoperating Income (Expense) *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	NOPI/(CSHPRI * AJEX)

Operating Income After Depreciation

Operating Income After Depreciation *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	OIADP/(CSHPRI * AJEX)

Operating Income Before Depreciation

Operating Income Before Depreciation *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	OIBDP/(CSHPRI * AJEX)

Operating Income Before Depreciation**

Sales** *minus* Cost of Goods Sold** *minus* Selling, General, and Administrative Expense**	(SALE – COGS – XSGA)/ (CSHPRI * AJEX)

**Items flagged with a double asterisk (**) are restated items, which, effective June 2006, are no longer available. Henceforth, restated data can be accessed using a combination of a data item and Data Format (DATAFMT). For example, the data that would have previously been available in the Sales – Net – Restated (SALER) data item will now be found in the Sales – Net (SALE) data item with a Data Format Code of SUMM_STD

Pension Expense

Pension and Retirement Expense *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	XPR/(CSHPRI * AJEX)

Pretax Income

Pretax Income *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	PI/(CSHPRI * AJEX)

Research and Development Expense

Research and Development Expense *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	XRD/(CSHPRI * AJEX)

Sales (Net)

Sales (Net) *divided by* [Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date]	SALE/(CSHPRI * AJEX)

Operating Margins

(*Item*) as a Percentage of sales

Advertising Expense	
Advertising Expense *divided by* Sales (Net)	(XAD/SALE) * **100**
Cost of Goods Sold	
Cost of Goods Sold *divided by* Sales (Net)	(COGS/SALE) * **100**
Depreciation and Amortization	
Depreciation and Amortization *divided by* Sales (Net)	(DP/SALE) * **100**
Interest Expense	
Interest Expense *divided by* Sales (Net)	(XINT/SALE) * **100**
Labor and Related Expenses	
Labor and Related Expenses *divided by* Sales (Net)	(XLR/SALE) * **100**
Nonoperating Income (Expense)	
Nonoperating Income (Expense) *divided by* Sales (Net)	(NOPI/SALE) * **100**
Pension and Retirement Expense	
Pension and Retirement Expense *divided by* Sales (Net)	(XPR/SALE) * **100**
Rental Expense	
Rental Expense *divided by* Sales (Net)	(XRENT/SALE) * **100**
Research and Development Expense	
Research and Development Expense *divided by* Sales (Net)	(XRD/SALE) * **100**
Selling, General, and Administrative Expenses	
Selling, General, and Administrative Expenses *divided by* Sales (Net)	(XSGA/SALE) * **100**

Cash Flow Margin

Definition 1	
[Income Before Extraordinary Items (Cash Flow) *plus* Depreciation and Amortization (Statement of Cash Flows)] *divided by* Sales (Net)	[(IBC + DPC)/SALE] * **100**

Definition 2	
[Income Before Extraordinary Items (Cash Flow) *plus* Depreciation and Amortization (Statement of Cash Flows) *plus* Deferred Taxes (Statement of Cash Flows) *plus* Equity in Net Loss (Earnings) (Statement of Cash Flows) *plus* Extraordinary Items and Discontinued Operations (Statement of Cash Flows) *plus* Noncontrolling Interest (Income Account)] *divided by* Sales (Net)	[(IBC + DPC + TXDC + ESUBC + XIDOC + MII)/SALE] *** 100**
Definition 3	
[Income Before Extraordinary Items (Cash Flow) *plus* Depreciation and Amortization (Statement of Cash Flows) *plus* Deferred Taxes (Statement of Cash Flows) *plus* Equity in Net Loss (Earnings) (Statement of Cash Flows) *plus* Extraordinary Items and Discontinued Operations (Statement of Cash Flows) *divided by* Sales (Net)]	[(IBC + DPC + TXDC + ESUBC + XIDOC)/SALE] *** 100**
Definition 4	
(Income Before Extraordinary Items *plus* Depreciation and Amortization) *divided by* Sales (Net)	((IB + DP)/SALE) *** 100**

Net Profit Margin (After-tax Profit Margin)

Income Before Extraordinary Items *divided by* Sales (Net)	(IB/SALE) *** 100**

Operating Profit Margin After Depreciation

(Operating Income Before Depreciation *minus* Depreciation and Amortization) *divided by* Sales (Net)	((OIBDP – DP)/SALE) *** 100**
or	*or*
Operating Income After Depreciation *divided by* Sales (Net)	(OAIDP/SALE) *** 100**

Operating Profit Margin Before Depreciation

Operating Income Before Depreciation *divided by* Sales (Net)	(OIBDP/SALE) *** 100**

Pretax Profit Margin

Pretax Income *divided by* Sales (Net)	(PI/SALE) *** 100**

Balance Sheet (Total in Millions)

Gross Assets

Assets – Total/Liabilities and Stockholders/Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated)	AT + DPACT

Invested Capital (Total)

Definition 1	
Invested Capital – Total	ICAPT
Definition 2	
Invested Capital – Total *minus* Redeemable Noncontrolling Interest (Balance Sheet)	ICAPT – MIB

Definition 3	
Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *minus* Redeemable Noncontrolling Interest (Balance Sheet)	ICAPT + TXDITC – MIB
Definition 4	
Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet)	ICAPT + TXDITC

Net Operating Assets

Property, Plant, and Equipment – Total (Net) *plus* Current Assets – Total *minus* Current Liabilities – Total	PPENT + ACT – LCT

Stockholders' Equity (Net Worth)

Alternative Definition	
Preferred Stock – Liquidating Value *plus* Common Equity – Tangible	PSTKL + CEQT

Total Debt

Long- Term Debt – Total *plus* Debt in Current Liabilities	DLTT + DLC

Total Earning Assets

Property, Plant, and Equipment – Total (Net) *plus* Current Assets – Total	PPENT + ACT

Working Capital

Current Assets – Total *minus* Current Liabilities – Total	ACT – LCT

Balance Sheet (per Share)

Capital Expenditures

Property, Plant, and Equipment – Capital Expenditures (Schedule V) *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	CAPXV/(CSHO ***** AJEX)

Common Equity – Tangible

Common Equity – Tangible *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	CEQT/(CSHO ***** AJEX)

Common Equity – Liquidating Value

Common Equity – Liquidation Value *divided by*[(Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	CEQL/(CSHO ***** AJEX)

Common Equity – Total

Common Equity – Total *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	CEQ/(CSHO ***** AJEX)

Gross Assets

(Assets – Total/Liabilities and Stockholders' Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated)) *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(AT + DPACT)/(CSHO * AJEX)

Invested Capital

Definition 1	
Invested Capital – Total *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	ICAPT/(CSHO * AJEX)
Definition 2	
(Invested Capital – Total *minus* Redeemable Noncontrolling Interest (Balance Sheet)) *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(ICAPT – MIB)/(CSHO * AJEX)
Definition 3	
(Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *minus* Redeemable Noncontrolling Interest (Balance Sheet)) *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(ICAPT + TXDITC – MIB)/(CSHO * AJEX)
Definition 4	
(Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet)) *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(ICAPT + TXDITC)/(CSHO * AJEX)

Net Operating Assets

(Property, Plant, and Equipment – Total (Net) *plus* Current Assets – Total *minus* Current Liabilities – Total) *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(PPENT + ACT – LCT)/(CSHO * AJEX)

Property, Plant, and Equipment – Total (Net)

Property, Plant, and Equipment – Total (Net*) divided by* (Common Shares Outstanding *multiplied by* Adjustment – Factor (Cumulative) Ex-Date)	PPENT/(CSHO * AJEX)

Total Net Assets

Assets – Total/Liabilities and Stockholders' Equity – Total *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	AT/(CSHO * AJEX)

Working Capital

(Current Assets – Total *minus* Current Liabilities – Total) *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(ACT – LCT)/(CSHO * AJEX)

Retained Earnings Statement (Total in Millions)

Retained Earnings

Unadjusted Retained Earnings + Accumulated Other Comprehensive Income (Loss) + Other Stockholders Equity Adjustments	REUNA + ACOMINC + SEQO
Beginning of Year	
Retained Earnings *t minus 1*	RE(**t** – **1**)
End of Year	
Retained Earnings *t*	RE**t**
Other Changes	
Retained Earnings *t minus* Retained Earnings *t minus 1 minus* Retained Earnings Restatement *minus* Income Before Extraordinary Items (Cash Flow) *minus* Extraordinary Items and Discontinued Operations (Statement of Cash Flows) *plus* Cash Dividends (Statement of Cash Flows)	RE**t** – RE(**t** – **1**) – REA – IBC – XIDOC + DV

Turnover Ratios

Accounts Receivable Turnover

Sales (Net) *divided by* [(Receivables – Total *t plus* Receivables – Total *t minus 1*) *divided by* 2]	SALE/((RECT**t** + RECT(**t** – **1**))/**2**)

(*Item*) as a Percentage of Sales

Accounts Receivables	
Receivables – Total *divided by* Sales (Net)	(RECT/SALE) * **100**
Cash and Short-Term Investments	
Cash and Short-Term Investments *divided by* Sales (Net)	(CHE/SALE) * **100**
Inventories	
Inventories – Total *divided by* Sales (Net)	(INVT/SALE) * **100**

Inventory Turnover

Definition 1	
Cost of Goods Sold *divided by* ((Inventories – Total *t plus* Inventories – Total *t minus 1*) *divided by* 2)	COGS/((INVT**t** + INVT(**t** – **1**))/**2**)
Definition 2	
Sales (Net) *divided by* ((Inventories – Total *t plus* Inventories – Total *t minus* 1) *divided by* 2)	SALE/((INVT**t** + INVT(**t** – **1**))/**2**)

Number of Days' Sales

in Inventories – Definition 1	
((Inventories – Total *t plus* Inventories – Total *t minus 1*) *divided by* 2) *divided by* (Cost of Goods Sold *divided by* 365)	((INVT**t** + INVT(**t** – **1**)) /**2**)/(COGS/**365**)
in Inventories – Definition 2	
((Inventories – Total t *plus* Inventories – Total *t minus 1*) *divided by* 2) *divided by* (Sales (Net) *divided by* 365)	(INVT**t** + INVT(**t** – **1**)/**2**) /(SALE/**365**)

in Receivables	
((Receivables – Total t *plus* Receivables – Total *t minus 1*) *divided by* 2) *divided by* (Sales (Net) *divided by* 365)	((RECT**t** + RECT(**t** – **1**))/**2**) /(SALE/**365**)
Sales per $ Cash and Short-Term Investments	
Sales (Net) *divided by* Cash and Short-Term Investments	SALE/CHE
Sales per $ Common Equity	
Sales (Net) *divided by* Common Equity – Total	SALE/CEQ
Tangible	
Sales (Net) *divided by* Common Equity – Tangible	SALE/CEQT
Liquidating Value	
Sales (Net) *divided by* Common Equity – Liquidation Value	SALE/CEQL
Sales per $ Gross Assets	
Sales (Net) *divided by* (Assets – Total/Liabilities and Stockholders' Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated))	SALE/(AT + DPACT)
Sales per $ Inventory	
Sales (Net) *divided by* Inventories – Total	SALE/INVT
Sales per $ Invested Capital	
Definition 1	
Sales (Net) *divided by* Invested Capital – Total	SALE/ICAPT
Definition 2	
Sales (Net) *divided by* (Invested Capital – Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	SALE/(ICAPT – MIB)
Definition 3	
Sales (Net) *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit(Balance Sheet) *minus* Redeemable Noncontrolling Interest (Balance Sheet))	SALE/(ICAPT + TXDITC – MIB)
Definition 4	
Sales (Net) *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet))	SALE/(ICAPT + TXDITC)
Sales per $ Net Assets	
Sales (Net) *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	SALE/AT
Sales per $ Property, Plant, and Equipment	
Gross	
Sales (Net) *divided by* Property, Plant, and Equipment – Total (Gross)	SALE/PPEGT

Net	
Sales (Net) *divided by* Property, Plant, and Equipment – Total (Net)	SALE/PPENT
Sales per $ Receivable – Current	
Sales (Net) *divided by* Receivables – Total	SALE/RECT
Sales per $ Stockholders' Equity	
Tangible	
Sales (Net) *divided by* (Preferred Stock – Liquidating Value *plus* Common Equity – Tangible)	SALE/(PSTKL + CEQT)
Total	
Sales (Net) *divided by* Total Parent Stockholders' Equity	SALE/SEQ

Rates of Return

After-tax Return	
on Average Common Equity – Total	
Income Before Extraordinary Items – Adjusted for Common Stock Equivalents *divided by* ((Common Equity – Total t *plus* Common Equity – Total *t minus 1*) *divided by* 2)	(IBCOM/((CEQ**t** + CEQ(**t** – **1**))/**2**)) *** 100**
on Common Equity – Tangible	
Income Before Extraordinary Items – Adjusted for Common Stock Equivalents *divided by* Common Equity – Tangible	(IBCOM/CEQT) *** 100**
on Common Equity – Total	
Income Before Extraordinary Items – Adjusted for Common Stock Equivalents *divided by* Common Equity – Total	(IBCOM/CEQ) *** 100**
on Gross Assets – Definition 1	
[Income Before Extraordinary Items *divided by* (Assets – Total/Liabilities and Stockholders' Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated) (Balance Sheet)]	[IB/(AT + DPACT)] *** 100**
on Gross Assets – Definition 2	
[Income Before Extraordinary Items *plus* Interest Expense) *divided by* (Assets – Total/Liabilities and Stockholders' Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated) (Balance Sheet)]	[(IB + XINT)/(AT + DPACT)] *** 100**
on Gross Assets – Definition 3	
[Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes – Total *divided by* Pretax Income)))) *divided by* (Assets – Total/Liabilities and Stockholders' Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated) (Balance Sheet)]	[(IB + (XINT ***** (**1** – (TXT/PI))))/(AT + DPACT)] *** 100**

on Gross Assets – Definition 4	
[Income Before Extraordinary Items *plus* Interest Expense *plus* Noncontrolling Interest (Income Account)) *divided by* (Assets – Total/Liabilities and Stockholders' Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated) (Balance Sheet)]	[(IB + XINT + MII)/(AT + DPACT)] *** 100**
on Gross Assets – Definition 5	
[Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes **–** Total *divided by* Pretax Income))) *plus* Noncontrolling Interest (Income Account)) *divided by* (Assets **–** Total/Liabilities and Stockholders' Equity **–** Total *plus* Depreciation, Depletion, and Amortization (Accumulated) (Balance Sheet)]	[(IB + (XINT ***** (**1** – (TXT/PI))) + MII)/(AT + DPACT)] *** 100**
on Invested Capital – Definition 1A	
[Income Before Extraordinary Items *plus* Interest Expense *plus* Noncontrolling Interest (Income Account)] *divided by* Invested Capital – Total	[(IB + XINT + MII)/ICAPT] *** 100**
on Invested Capital – Definition 1B	
(Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes **–** Total *divided by* Pretax Income))) *plus* Noncontrolling Interest (Income Account)) *divided by* Invested Capital **–** Total	((IB + (XINT ***** (**1** – (TXT/PI))) + MII)/ICAPT) *** 100**
on Invested Capital – Definition 2A	
(Income Before Extraordinary Items *plus* Interest Expense) *divided by* (Invested Capital **–** Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	((IB + XINT)/(ICAPT – MIB)) *** 100**
on Invested Capital – Definition 2B	
(Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes – Total *divided by* Pretax Income)))) *divided by* (Invested Capital – Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	((IB + (XINT ***** (**1** – (TXT/PI))))/(ICAPT – MIB)) *** 100**
on Invested Capital – Definition 3A	
(Income Before Extraordinary Items *plus* Interest Expense) *divided by* (Invested Capital **–** Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *minus* Redeemable Noncontrolling Interest (Balance Sheet))	((IB + XINT)/(ICAPT + TXDITC – MIB)) *** 100**
on Invested Capital – Definition 3B	
(Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes **–** Total *divided by* Pretax Income)))) divided by(Invested Capital **–** Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *minus* Redeemable Noncontrolling Interest (Balance Sheet))	((IB + (XINT ***** (**1** – (TXT/PI))))/(ICAPT + TXDITC – MIB)) *** 100**
on Invested Capital – Definition 4A	
(Income Before Extraordinary Items *plus* Interest Expense plus Noncontrolling Interest (Income Account)) *divided by* (Invested Capital **–** Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet))	((IB + XINT + MII)/(ICAPT + TXDITC)) *** 100**

on Invested Capital – Definition 4B	
(Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes – Total *divided by* Pretax Income))) *plus* Noncontrolling Interest (Income Account)) *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet))	((IB + (XINT ***** (**1** – (TXT/PI))) + MII)/(ICAPT + TXDITC)) *** 100**
on Property, Plant, and Equipment – Total (Net) – Definition 1	
Income Before Extraordinary Items *divided by* Property, Plant, and Equipment – Total (Net)	(IB/PPENT) *** 100**
on Property, Plant, and Equipment – Total (Net) – Definition 2	
(Income Before Extraordinary Items *plus* Interest Expense) *divided by* Property, Plant, and Equipment – Total (Net)	((IB + XINT)/PPENT) *** 100**
on Property, Plant, and Equipment – Total (Net) – Definition 3	
(Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes – Total *divided by* Pretax Income)))) *divided by* Property, Plant, and Equipment – Total (Net)	((IB + (XINT ***** (**1** – (TXT/PI))))/PPENT) *** 100**
on Property, Plant, and Equipment – Total (Net) – Definition 4	
(Income Before Extraordinary Items *plus* Interest Expense *plus* Noncontrolling Interest (Income Account)) *divided by* Property, Plant, and Equipment – Total (Net)	((IB + XINT + MII)/PPENT) *** 100**
on Property, Plant, and Equipment – Total (Net) – Definition 5	
(Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes – Total *divided by* Pretax Income))) *plus* Noncontrolling Interest (Income Account)) *divided by* Property, Plant, and Equipment – Total (Net)	((IB + (XINT ***** (**1** – (TXT/PI))) + MII)/PPENT) *** 100**
on Stockholders' Equity – Definition 1	
Income Before Extraordinary Items *divided by* Total Parent Stockholders' Equity	(IB/SEQ) *** 100**
on Stockholders' Equity – Definition 2	
Income Before Extraordinary Items *divided by* (Preferred Stock – Liquidating Value *plus* Common Equity – Tangible)	(IB/(PSTKL + CEQT)) *** 100**
on Stockholders' Equity – Definition 3	
Income Before Extraordinary Items divided by Stockholders' Equity - Total	IBMII/TEQ

Pretax Return

on Net Operating Assets	
(Operating Income Before Depreciation *minus* Depreciation and Amortization) *divided by* (Property, Plant, and Equipment – Total (Net) *plus* Current Assets – Total *minus* Current Liabilities – Total) or Operating Income After Depreciation *divided by* (Property, Plant, and Equipment – Total (Net) *plus* Current Assets – Total *minus* Current Liabilities – Total)	((OIBDP – DP)/(PPENT + ACT – LCT)) *** 100** *or* (OIADP/(PPENT + ACT – LCT)) *** 100**

on Total Earning Assets	
(Operating Income Before Depreciation *minus* Depreciation and Amortization) *divided by* (Property, Plant, and Equipment – Total (Net) *plus* Current Assets – Total) or Operating Income After Depreciation *divided by* (Property, Plant, and Equipment – Total (Net) *plus* Current Assets – Total)	((OIBDP + DP)/(PPENT + ACT)) *** 100** *or* (OIADP/(PPENT + ACT)) *** 100**

Sales per $ Working Capital

Sales (Net) *divided by* (Current Assets – Total *minus* Current Liabilities – Total)	SALE/(ACT – LCT)

Working Capital as a Percentage of Sales

(Current Assets – Total *minus* Current Liabilities – Total) *divided by* Sales (Net)	((ACT – LCT)/SALE) *** 100**

Capitalization Ratios

Invested Capital

Definition 1	
Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Common Equity – Total *plus* Redeemable Noncontrolling Interest (Balance Sheet)	DLTT + PSTK + CEQ + MIB
Common Equity – Tangible as a % of Invested Capital Common Equity – Tangible *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Common Equity – Total *plus* Redeemable Noncontrolling Interest (Balance Sheet))	(CEQT/ICAPT) *** 100**
Common Equity – Total as a % of Invested Capital Common Equity – Total *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Common Equity – Total *plus* Redeemable Noncontrolling Interest (Balance Sheet))	(CEQ/ICAPT) *** 100**
Long-Term Debt – Total as a % of Invested Capital Long-Term Debt – Total *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Common Equity – Total *plus* Redeemable Noncontrolling Interest (Balance Sheet))	(DLTT/ICAPT) *** 100**
Redeemable Noncontrolling Interest (Balance Sheet) as a % of Invested Capital Redeemable Noncontrolling Interest (Balance Sheet) *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Common Equity – Total *plus* Redeemable Noncontrolling Interest (Balance Sheet))	(MIB/ICAPT) *** 100**
Preferred Stock – Carrying Value as a % of Invested Capital Preferred Stock – Carrying Value *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Common Equity – Total *plus* Redeemable Noncontrolling Interest (Balance Sheet))	(PSTK/ICAPT) *** 100**

Preferred Stock – Liquidating Value as a % of Invested Capital Preferred Stock – Liquidating Value *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Common Equity – Total *plus* Redeemable Noncontrolling Interest (Balance Sheet))	(PSTKL/ICAPT) *** 100**
Total Debt as a % of Invested Capital (Long-Term Debt **–** Total *plus* Debt in Current Liabilities) *divided by* Invested Capital **–** Total	((DLTT + DLC)/ICAPT) *** 100**
Definition 2 Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Common Equity – Total	DLTT + PSTK + CEQ
Common Equity – Tangible as a % of Invested Capital Common Equity – Tangible *divided by* (Invested Capital **–** Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(CEQT/(ICAPT – MIB)) *** 100**
Common Equity – Total as a % of Invested Capital Common Equity – Total *divided by* (Invested Capital **–** Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(CEQ/(ICAPT – MIB)) *** 100**
Long-Term Debt as a % of Invested Capital Long-Term Debt *divided by* (Invested Capital **–** Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(DLTT/(ICAPT – MIB)) *** 100**
Preferred Stock – Carrying Value as a % of Invested Capital Preferred Stock – Carrying Value *divided by* (Invested Capital **–** Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(PSTK/(ICAPT – MIB)) *** 100**
Preferred Stock – Liquidating Value as a % of Invested Capital Preferred Stock – Liquidating Value *divided by* (Invested Capital **–** Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(PSTKL/(ICAPT – MIB)) *** 100**
Total Debt as a % of Invested Capital (Long-Term Debt – Total *plus* Debt in Current Liabilities) *divided by* (Invested Capital **–** Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	((DLTT + DLC)/(ICAPT – MIB)) *** 100**
Definition 3 Long-Term Debt **–** Total *plus* Preferred Stock **–** Carrying Value *plus* Common Equity **–** Total *plus* Deferred Taxes and Investment Tax Credit	DLTT + PSTK + CEQ + TXDITC
Common Equity – Tangible as a % of Invested Capital Common Equity – Tangible *divided by* (Invested Capital **–** Total *plus* Deferred Taxes and Investment Tax Credit *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(CEQT/(ICAPT + TXDITC – MIB)) *** 100**
Common Equity – Total as a % of Invested Capital Common Equity – Total *divided by* (Invested Capital **–** Total *plus* Deferred Taxes and Investment Tax Credit *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(CEQ/(ICAPT + TXDITC – MIB)) *** 100**

Deferred Taxes and Investment Tax Credit as a% of Invested Capital Deferred Taxes and Investment Tax Credit (Balance Sheet) *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(TXDITC/(ICAPT + TXDITC – MIB)) *** 100**
Long-Term Debt as a % of Invested Capital Long-Term Debt – Total *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(DLTT/(ICAPT + TXDITC – MIB)) *** 100**
Preferred Stock – Carrying Value as a % of Invested Capital Preferred Stock – Carrying Value *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(PSTK/(ICAPT + TXDITC – MIB)) *** 100**
Preferred Stock – Liquidating Value as a % of Invested Capital Preferred Stock – Carrying Value *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(PSTKL/(ICAPT + TXDITC – MIB)) *** 100**
Total Debt as a % of Invested Capital (Long-Term Debt – Total *plus* Debt in Current Liabilities) *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit *minus* Redeemable Noncontrolling Interest (Balance Sheet))	((DLTT + DLC)/(ICAPT + TXDITC- MIB)) *** 100**
Definition 4 Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Redeemable Noncontrolling Interest (Balance Sheet) *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *plus* Common Equity – Total	DLTT + PSTK + MIB + TXDITC + CEQ
Common Equity – Tangible as a % of Invested Capital Common Equity – Tangible *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Redeemable Noncontrolling Interest (Balance Sheet) *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *plus* Common Equity – Total)	(CEQT/(ICAPT + TXDITC)) *** 100**
Common Equity – Total as a % of Invested Capital Common Equity – Total *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Redeemable Noncontrolling Interest (Balance Sheet) *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *plus* Common Equity – Total)	(CEQ/(ICAPT + TXDITC)) *** 100**
Deferred Taxes and Investment Tax Credit as a % of Invested Capital Deferred Taxes and Investment Tax Credit *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Redeemable Noncontrolling Interest (Balance Sheet) *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *plus* Common Equity – Total)	(TXDITC/(ICAPT + TXDITC)) *** 100**

Long-Term Debt as a % of Invested Capital Long-Term Debt *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Redeemable Noncontrolling Interest (Balance Sheet) *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *plus* Common Equity – Total)	(DLTT/(ICAPT + TXDITC)) *** 100**
Redeemable Noncontrolling Interest (Balance Sheet) as a % of Invested Capital Redeemable Noncontrolling Interest (Balance Sheet) *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Redeemable Noncontrolling Interest (Balance Sheet) *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *plus* Common Equity – Total)	(MIB/(ICAPT + TXDITC)) *** 100**
Preferred Stock – Carrying Value as a % of Invested Capital Preferred Stock – Carrying Value *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Redeemable Noncontrolling Interest (Balance Sheet) *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *plus* Common Equity – Total)	(PSTK/(ICAPT + TXDITC)) *** 100**
Preferred Stock – Liquidating Value as a % of Invested Capital Preferred Stock – Liquidating Value *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Redeemable Noncontrolling Interest (Balance Sheet) *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *plus* Common Equity – Total)	(PSTKL/(ICAPT + TXDITC)) *** 100**
Total Debt as a % of Invested Capital (Long-Term Debt **–** Total *plus* Debt in Current Liabilities) *divided by* (Invested Capital **–** Total *plus* Deferred Taxes and Investment Tax Credit(Balance Sheet))	((DLTT + DLC)/(ICAPT + TXDITC)) *** 100**

Criteria of Financial Soundness

(Item) as a Percentage of Average Long-Term Debt

Interest (Interest Expense *divided by* ((Long-Term Debt – Total t *plus* Long-Term Debt – Total *t minus 1*) *divided by* 2)	(XINT/((DLTT**t** + DLTT (**t** – **1**))/**2**)) *** 100**

(Item) as a Percentage of Average Total Debt

Interest Interest Expense *divided by* ((Long-Term Debt – *Total t plus* Long-Term Debt – Total *t minus 1 plus* Debt in Current Liabilities *t plus* Debt in Current Liabilities *t minus 1*) *divided by* 2)	(XINT/((DLTT**t** + DLTT(**t** – **1**) + DLC**t** + DLC(**t** – **1**))/**2**)) *** 100**

(Item) as a Percentage of Current Assets

Cash and Short-Term Investments Cash and Short-Term Investments *divided by* Current Assets – Total	(CHE/ACT) *** 100**
Current Assets – Other Current Assets – Other *divided by* Current Assets – Total	(ACO/ACT) *** 100**

Inventory	
Inventories – Total *divided by* Current Assets – Total	(INVT/ACT) *** 100**
Receivables	
Receivables – Total *divided by* Current Assets – Total	(RECT/ACT) *** 100**

(Item) as a Percentage of Intangibles

Goodwill	
Goodwill *divided by* Intangibles	(GDWL/INTAN) *** 100**

(Item) as a Percentage of Total Assets

Assets – Other	
Assets – Other *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	(AO/AT) *** 100**
Current Assets	
Current Assets – Total *divided by* Assets – Total/Liabilities and Stockholder's Equity – Total	(ACT/AT) *** 100**
Goodwill	
Goodwill *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	(GDWL/AT) *** 100**
Intangibles	
Intangibles *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	(INTAN/AT) *** 100**
Investments and Advances	
(Investments and Advances – Equity Method *plus* Investment and Advances – Other) *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	((IVAEQ + IVAO)/AT) *** 100**
Investments and Advances – Equity	
Investments and Advances – Equity Method *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	(IVAEQ/AT) *** 100**
Property, Plant, and Equipment – Total (Gross)	
Property, Plant, and Equipment – Total (Gross) *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	(PPEGT/AT) *** 100**
Property, Plant , and Equipment – Total (Net)	
Property, Plant, and Equipment – Total (Net) *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	(PPENT/AT) *** 100**
Total Debt	
(Long-Term Debt – Total *plus* Debt in Current Liabilities) *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	((DLTT + DLC)/AT) *** 100**

(Item) as a Percentage of Total Debt

Short-Term Debt	
Debt in Current Liabilities *divided by* (Long-Term Debt – Total *plus* Debt in Current Liabilities	(DLC/(DLTT + DLC)) *** 100**

(Item) as a Percentage of Total Liabilities

Current Liabilities – Total *divided by* Liabilities – Total	(LCT/LT) *** 100**
Deferred Taxes and Investment Tax Credit	
Deferred Taxes and Investment Tax Credit (Balance Sheet) *divided by* Liabilities – Total	(TXDITC/LT) *** 100**
Interest	
Interest Expense *divided by* Liabilities – Total	(XINT/LT) *** 100**
Liabilities – Other	
Liabilities – Other *divided by* Liabilities – Total	(LO/LT) *** 100**
Long-Term Debt	
Long-Term Debt *divided by* Liabilities – Total	(DLTT/LT) *** 100**
Noncontrolling Interest	
Redeemable Noncontrolling Interest (Balance Sheet) *divided by* Liabilities – Total	(MIB/LT) *** 100**
Preferred Stock – Carrying Value	
Preferred Stock – Carrying Value *divided by* Liabilities – Total	(PSTK/LT) *** 100**
Preferred Stock – Liquidating Value	
Preferred Stock – Liquidating Value *divided by* Liabilities – Total	(PSTKL/LT) *** 100**

(Item) as a Percentage of Total Liabilities and Stockholders' Equity

Common Equity – Total	
Common Equity – Total *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	(CEQ/AT) *** 100**
Stockholders' Equity – Total	
Total Parent Stockholders' Equity *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	(SEQ/AT) *** 100**

Capital Expenditure Coverage

(Depreciation and Amortization *plus* Income Before Extraordinary Items – Adjusted for Common Stock Equivalents *minus* Dividends – Common) *divided by* Shares Outstanding	(DP + IBADJ – DVC)/CSHO

Current Ratio

Current Assets – Total *divided by* Current Liabilities – Total	ACT/LCT

Debt/Equity Ratios

Long-Term Debt – Definition 1	
Long-Term Debt – Total *divided by* Common Equity – Total	DLTT/CEQ
Long-Term Debt – Definition 2	
Long-Term Debt – Total *divided by* Common Equity – Tangible	DLTT/CEQT
Long-Term Debt – Definition 3	
Long-Term Debt – Total *divided by* Total Parent	DLTT/SEQ

Stockholders' Equity	
Long-Term Debt – Definition 4	
Long-Term Debt – Total *divided by* (Preferred Stock – Liquidating Value *plus* Common Equity – Tangible)	DLTT/(PSTKL + CEQT)
Total Liabilities – Definition 1	
Liabilities – Total *divided by* Common Equity – Total	LT/CEQ
Total Liabilities – Definition 2	
Liabilities – Total *divided by* Common Equity – Tangible	LT/CEQT
Total Liabilities – Definition 3	
Liabilities – Total *divided by* Total Parent Stockholders' Equity	LT/SEQ
Total Liabilities – Definition 4	
Liabilities – Total *divided by* (Preferred Stock – Liquidating Value *plus* Common Equity – Tangible)	LT/(PSTKL + CEQT)

Interest Coverage

After-tax	
(Interest Expense *plus* Income Before Extraordinary Items) *divided by* Interest Expense	(XINT + IB)/XINT
Pretax	
(Interest Expense *plus* Pretax Income) *divided by* Interest Expense	(XINT +PI)/XINT

Quick Ratio (Acid Test)

(Cash and Short-Term Investments *plus* Receivables – Total) *divided by* Current Liabilities – Total	(CHE + RECT)/LCT

Management Decision Statistics

(Item) as a Percentage of Cash Flow

Cash Dividends – Definition 1	
Cash Dividends (Statement of Cash Flows) *divided by* (Income Before Extraordinary Items (Cash Flow) *plus* Depreciation and Amortization (Statement of Cash Flows))	(DV/(IBC + DPC)) *** 100**
Cash Dividends – Definition 2	
Cash Dividends (Statement of Cash Flows) *divided by* (Income Before Extraordinary Items (Cash Flow) *plus* Depreciation and Amortization (Statement of Cash Flows) *plus* Deferred Taxes (Statement of Cash Flows) *plus* Equity in Net Loss (Earnings) (Statement of Cash Flows) *plus* Extraordinary Items and Discontinued Operations (Statement of Cash Flows) *plus* Noncontrolling Interest (Income Account))	(DV/(IBC + DPC + TXDC + ESUBC + XIDOC + MII)) *** 100**
Cash Dividends – Definition 3	
Cash Dividends (Statement of Cash Flows) *divided by* (Income Before Extraordinary Items (Cash Flow) *plus* Extraordinary Items and Discontinued Operations (Statement of Cash Flows)*plus* Depreciation and Amortization (Statement of Cash Flows) *plus* Deferred Taxes (Statement of	(DV/(IBC + XIDOC + DPC + TXDC + ESUBC)) *** 100**

Cash Flows) *plus* Equity in Net Loss (Earnings) (Statement of Cash Flows)	

(Item) as a Percentage of Income Before Extraordinary Items – Adjusted for Common Stock Equivalents

Cash Dividends	
Cash Dividends (Statement of Cash Flows) *divided by* Income Before Extraordinary Items – Adjusted for Common Stock Equivalents	(DV/IBADJ) *** 100**

(Item) as a Percentage of Property, Plant, and Equipment – Total (Gross)

Depreciation Expense	
Depreciation and Amortization *divided by* Property, Plan, and Equipment – Total (Gross)	(DP/PPEGT) *** 100**
Property, Plant, and Equipment – Total (Net)	
Property, Plan, and Equipment – Total (Net) *divided by* Property, Plant, and Equipment – Total (Gross)	(PPENT/PPEGT) *** 100**

(Item) as a Percentage of Property, Plant, and Equipment – Total (Net)

Depreciation Expense	
Depreciation and Amortization *divided by* Property, Plant, and Equipment – Total (Net)	(DP/PPENT) *** 100**

Price and Market Data

Common Shares Outstanding – Adjusted

Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date	CSHO ***** AJEX

Common Shares Used to Calculate Earnings per Share (Basic) – Adjusted

Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date	CSHPRI ***** AJEX

Common Shares Used to Calculate Earnings per Share (Diluted) – Adjusted

Common Shares Used to Calculate Earnings per Share (Diluted) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date	CSHFD ***** AJEX

Treasury Stock – Number of Common Shares

Treasury Stock – Number of Common Shares *multiplied by* Adjustment Factor (Cumulative) by Ex-Date	TSTKN ***** AJEX

Price Ratios

Dividend Payout Ratio

Dividends – Common *divided by* Income Before Extraordinary Items – Adjusted for Common Stock Equivalents	DVC/IBADJ

Quarterly/Interim Data

Period data refers to quarterly/interim calculations that include quarterly/interim items that return year-to-date data. This is because the quarterly/interim data items used in the calculation are cash flow data, which is year-to-date

Many of the data items used in the financial formulas for quarterly data below are located in the Company Quarterly Fundamental (co_ifndq, co_ifndsa or co_ifndytd) data groups.

Statements of Changes in Financial Position (Total in Millions)

Cash Flow (in Millions)

Definition 1	
Income Before Extraordinary Items (Cash Flow) *plus* Depreciation and Amortization	IBCY + DPCY
Definition 3	
Income Before Extraordinary Items (Cash Flow) *plus* Depreciation and Amortization *plus* Deferred Taxes *plus* Equity in Net Loss (Earnings) (Statement of Cash Flows) *plus* Extraordinary Items and Discontinued Operations	IBCY + DPCY + TXDCY + ESUBCY + XIDOCY

Statements of Changes in Financial Position (per Share)

Capital Expenditures

Capital Expenditures (Statement of Cash Flows) *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	CAPXY/(CSHPRQ ***** AJEXQ)

Cash Flow

Definition 1	
(Income Before Extraordinary Items (Statement of Cash Flows) *plus* Depreciation and Amortization (Statement of Cash Flows)) *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(IBCY + DPCY)/(CSHPRQ ***** AJEXQ)
Definition 3	
(Income Before Extraordinary Items (Statement of Cash Flows) *plus* Depreciation and Amortization (Statement of Cash Flows) *plus* Deferred Taxes (Statement of Cash Flows) *plus* Equity in Net Loss (Earnings) (Statement of Cash Flows) *plus* Extraordinary Items and Discontinued Operations (Statement of Cash Flows)) *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(IBCY + DPCY + TXDCY + ESUBCY + XIDOCY)/(CSHPRQ ***** AJEXQ)

Equity in Earnings per Share

Equity in Net Loss (Earnings) (Statement of Cash Flows) *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	ESUBCY/(CSHPRQ ***** AJEXQ)

Income Statement (Total in Millions)

Cash Flow (in Millions)

Income Before Extraordinary Items *plus* Depreciation and Amortization	IBQ + DPQ

Preferred Dividend Coverage

Income Before Extraordinary Items *divided by* Dividends – Preferred	IBQ/DVPQ

Tax Rate

Income Taxes – Total *divided by* Pretax Income	(TXTQ/PIQ) *** 100**

Income Statement (per Share)

Cash Flow

[Income Before Extraordinary Items *plus* Depreciation and Amortization] *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(IBQ + DPQ)/(CSHPRQ ***** AJEXQ)

Depreciation and Amortization

Depreciation and Amortization *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	DPQ/(CSHPRQ ***** AJEXQ)

Discontinued Operations

Discontinued Operations *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	DOQ/(CSHPRQ***** AJEXQ)

Earnings per Share (Diluted)

Excluding Extraordinary Items	
Earnings per Share (Diluted) – Excluding Extraordinary Items *divided by* Adjustment Factor (Cumulative) by Ex-Date	EPSFXQ/AJEXQ
Including Extraordinary Items	
Earnings per Share (Diluted) – Including Extraordinary Items *divided by* Adjustment Factor (Cumulative) by Ex-Date	EPSFIQ/AJEXQ

Earnings per Share (Basic)

Excluding Extraordinary Items	
Earnings per Share (Basic) – Excluding Extraordinary Items *divided by* Adjustment Factor (Cumulative) by Ex-Date	EPSPXQ/AJEXQ
Excluding Extraordinary Items – 12-Months Moving	
Earnings per Share (Basic) – Excluding Extraordinary Items – 12-Months Moving *divided by* Adjustment Factor (Cumulative) by Ex-Date	EPSX12/AJEXQ

Including Extraordinary Items	
Earnings per Share (Basic) – Including Extraordinary Items *divided by* Adjustment Factor (Cumulative) by Ex-Date	EPSPIQ/AJEXQ
Extraordinary Items	
Extraordinary Items *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	XIQ/(CSHPRQ * AJEXQ)
Extraordinary Items and Discontinued Operations	
Extraordinary Items and Discontinued Operations *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	XIDOQ/(CSHPRQ * AJEXQ)
Interest Expense	
Interest Expense *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	XINTQ/(CSHPRQ * AJEXQ)
Nonoperating Income (Expense)	
Nonoperating Income (Expense) *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	NOPIQ/(CSHPRQ * AJEXQ)
Operating Income After Depreciation	
Operating Income After Depreciation *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	OIADPQ/(CSHPRQ * AJEXQ)
Operating Income Before Depreciation	
Operating Income Before Depreciation *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	OIBDPQ/(CSHPRQ * AJEXQ)
Pretax Income	
Pretax Income *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	PIQ/(CSHPRQ * AJEXQ)
Research and Development Expense	
Research and Development Expense *divided by* (Common Shares Used to Calculate Earnings per Share (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	XRDQ/(CSHPRQ * AJEXQ)

Operating Margins

(*Item*) as a Percentage of sales	
Cost of Goods Sold	
Cost of Goods Sold *divided by* Sales (Net)	(COGSQ/SALEQ) *** 100**
Depreciation and Amortization	
Depreciation and Amortization *divided by* Sales (Net)	(DPQ/SALEQ) *** 100**
Interest Expense	
Interest Expense *divided by* Sales (Net)	(XINTQ/SALEQ) *** 100**
Nonoperating Income (Expense)	
Nonoperating Income (Expense) *divided by* Sales (Net)	(NOPIQ/SALEQ) *** 100**
Research and Development Expense	
Research and Development Expense *divided by* Sales (Net)	(XRDQ/SALEQ) *** 100**
Selling, General, and Administrative Expenses	
Selling, General, and Administrative Expenses *divided by* Sales (Net)	(XSGAQ/SALEQ) *** 100**

Cash Flow Margin	
Definition 1	
[Income Before Extraordinary Items (Statement of Cash Flows) *plus* Depreciation and Amortization (Statement of Cash Flows)] *divided by* Sales (Net)	[(IBCY+ DPCY)/SALEQ] *** 100**
Definition 2	
[Income Before Extraordinary Items (Statement of Cash Flows) *plus* Depreciation and Amortization (Statement of Cash Flows) *plus* Deferred Taxes (Statement of Cash Flows) *plus* Equity in Net Loss (Earnings) (Statement of Cash Flows) *plus* Extraordinary Items and Discontinued Operations (Statement of Cash Flows) *plus* Noncontrolling Interest (Income Account)] *divided by* Sales (Net)	[(IBCY + DPCY + TXDCY + ESUBCY + XIDOCY + MIIQ)/SALEQ] *** 100**
Definition 3	
[Income Before Extraordinary Items (Statement of Cash Flows) *plus* Depreciation and Amortization (Statement of Cash Flows) *plus* Deferred Taxes (Statement of Cash Flows) *plus* Equity in Net Loss (Earnings) (Statement of Cash Flows) *plus* Extraordinary Items and Discontinued Operations (Statement of Cash Flows) *divided by* Sales (Net)]	[(IBCY + DPCY + TXDCY + ESUBCY + XIDOCY)/SALEQ] *** 100**
Definition 4	
(Income Before Extraordinary Items *plus* Depreciation and Amortization) *divided by* Sales (Net)	((IBQ + DPQ)/SALEQ) *** 100**

Net Profit Margin (After-tax Profit Margin)	
Income Before Extraordinary Items *divided by* Sales (Net)	(IBQ/SALEQ) *** 100**

Operating Profit Margin After Depreciation	
(Operating Income Before Depreciation *minus* Depreciation and Amortization) *divided by* Sales (Net)	((OIBDPQ – DPQ)/SALEQ) *** 100**

or Operating Income After Depreciation *divided by* Sales (Net)	or (OIADPQ/SALEQ) *** 100**
Operating Profit Margin Before Depreciation Operating Income Before Depreciation *divided by* Sales (Net)	(OIBDPQ/SALEQ) *** 100**
Pretax Profit Margin Pretax Income *divided by* Sales (Net)	(PIQ/SALEQ) *** 100**

Balance Sheet (Total $ Millions)

Gross Assets Assets – Total/Liabilities and Stockholders/Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated)	ATQ + DPACTQ
Invested Capital (Total) **Definition 1** Invested Capital – Total	ICAPTQ
Definition 2 Invested Capital – Total *minus* Redeemable Noncontrolling Interest (Balance Sheet)	ICAPTQ – MIBQ
Definition 3 Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *minus* Redeemable Noncontrolling Interest (Balance Sheet)	ICAPTQ + TXDITCQ – MIBQ
Definition 4 Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet)	ICAPTQ + TXDITCQ
Net Operating Assets Property, Plant, and Equipment – Total (Net) *plus* Current Assets – Total *minus* Current Liabilities – Total	PPENTQ + ACTQ – LCTQ
Stockholders' Total Debt Long- Term Debt – Total *plus* Debt in Current Liabilities	DLTTQ+ DLCQ
Total Earning Assets Property, Plant, and Equipment – Total (Net) *plus* Current Assets – Total	PPENTQ + ACTQ
Working Capital Current Assets – Total *minus* Current Liabilities – Total	ACTQ – LCTQ

Balance Sheet (per Share)

Common Equity – Total

Common Equity – Total *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	CEQQ/(CSHOQ ***** AJEXQ)

Gross Assets

(Assets – Total/Liabilities and Stockholders' Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated)) *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(ATQ + DPACTQ)/(CSHOQ ***** AJEXQ)

Invested Capital

Definition 1	
Invested Capital – Total *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	ICAPTQ/(CSHOQ ***** AJEXQ)
Definition 2	
(Invested Capital – Total *minus* Redeemable Noncontrolling Interest (Balance Sheet)) *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(ICAPTQ – MIBQ)/(CSHOQ ***** AJEXQ)
Definition 3	
(Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *minus* Redeemable Noncontrolling Interest (Balance Sheet)) *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(ICAPTQ + TXDITCQ – MIBQ)/(CSHOQ ***** AJEXQ)
Definition 4	
(Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet)) *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(ICAPTQ + TXDITCQ)/(CSHOQ ***** AJEXQ)

Net Operating Assets

(Property, Plant, and Equipment – Total (Net) *plus* Current Assets – Total *minus* Current Liabilities – Total) *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(PPENTQ + ACTQ – LCTQ)/(CSHOQ ***** AJEXQ)

Property, Plant, and Equipment – Total (Net)

Property, Plant, and Equipment – Total (Net*) divided by* (Common Shares Outstanding *multiplied by* Adjustment – Factor (Cumulative) Ex-Date)	PPENTQ/(CSHOQ ***** AJEXQ)

Total Net Assets

Assets – Total/Liabilities and Stockholders' Equity – Total *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	ATQ/(CSHOQ ***** AJEXQ)

Working Capital

(Current Assets – Total *minus* Current Liabilities – Total) *divided by* (Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date)	(ACTQ – LCTQ)/(CSHOQ ***** AJEXQ)

Retained Earnings Statement (Total in Millions)

Retained Earnings

Unadjusted Retained Earnings + Accumulated Other Comprehensive Income (Loss) + Other Stockholders Equity Adjustments	REUNAQ + ACOMINCQ + SEQOQ
Beginning of Year	
Retained Earnings *t minus 1*	REQ(**t** – **1**)
End of Year	
Retained Earnings *t*	REQ**t**

Turnover Ratios

Accounts Receivable Turnover

Sales (Net) *divided by* [(Receivables – Total *t plus* Receivables – Total *t minus 1*) *divided by* 2]	SALEQ/((RECTQ**t** + RECTQ(**t** – **1**))/**2**)

(*Item*) as a Percentage of Sales

Accounts Receivables	
Receivables – Total *divided by* Sales (Net)	(RECTQ/SALEQ) *** 100**
Cash and Short-Term Investments	
Cash and Short-Term Investments *divided by* Sales (Net)	(CHEQ/SALEQ) *** 100**
Inventories	
Inventories – Total *divided by* Sales (Net)	(INVTQ/SALEQ) *** 100**

Inventory Turnover

Definition 1	
Cost of Goods Sold *divided by* ((Inventories – Total *t plus* Inventories – Total *t minus 1*) *divided by* 2)	COGSQ/((INVTQ**t** + INVTQ(**t** – **1**))/**2**)
Definition 2	
Sales (Net) *divided by* ((Inventories – Total *t plus* Inventories – Total *t minus* 1) *divided by* 2)	SALEQ/((INVTQ**t** + INVTQ(**t** – **1**))/**2**)

Number of Days' Sales

in Inventories – Definition 1	
((Inventories – Total *t plus* Inventories – Total *t minus 1*) *divided by* 2) *divided by* (Cost of Goods Sold *divided by* 365)	((INVTQ**t** + INVTQ(**t** – **1**))/**2**)/(COGSQ/**2**)
in Inventories – Definition 2	
((Inventories – Total t *plus* Inventories – Total *t minus 1*) *divided by* 2) *divided by* (Sales (Net) *divided by* 365)	(INVTQ**t** + INVTQ(**t** – **1**)/**2**) /(SALEQ/**2**)

in Receivables	
((Receivables – Total t *plus* Receivables – Total *t minus 1*) *divided by* 2) *divided by* (Sales (Net) *divided by* 365)	((RECTQ**t** + RECTQ(**t** – **1**))/**2**) /(SALEQ/**2**)
Sales per $ Cash and Short-Term Investments	
Sales (Net) *divided by* Cash and Short-Term Investments	SALEQ/CHEQ
Sales per $ Common Equity	
Sales (Net) *divided by* Common Equity – Total	SALEQ/CEQQ
Sales per $ Gross Assets	
Sales (Net) *divided by* (Assets – Total/Liabilities and Stockholders' Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated))	SALEQ/(ATQ + DPACTQ)
Sales per $ Inventory	
Sales (Net) *divided by* Inventories – Total	SALEQ/INVTQ
Sales per $ Invested Capital	
Definition 1	
Sales (Net) *divided by* Invested Capital – Total	SALEQ/ICAPTQ
Definition 2	
Sales (Net) *divided by* (Invested Capital – Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	SALEQ/(ICAPTQ – MIBQ)
Definition 3	
Sales (Net) *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit(Balance Sheet) *minus* Redeemable Noncontrolling Interest (Balance Sheet))	SALEQ/(ICAPTQ + TXDITCQ – MIBQ)
Definition 4	
Sales (Net) *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet))	SALEQ/(ICAPTQ + TXDITCQ)
Sales per $ Net Assets	
Sales (Net) *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	SALEQ/ATQ
Sales per $ Property, Plant, and Equipment	
Gross	
Sales (Net) *divided by* Property, Plant, and Equipment – Total (Gross)	SALESQ/PPEGTQ)
Net	
Sales (Net) *divided by* Property, Plant, and Equipment – Total (Net)	SALEQ/PPENTQ
Sales per $ Receivable – Current	
Sales (Net) *divided by* Receivables – Total	SALEQ/RECTQ

Sales per $ Stockholders' Equity

Total	
Sales (Net) *divided by* Total Parent Stockholders' Equity	SALEQ/SEQQ

Rates of Return

After-tax Return

on Average Common Equity – Total	
Income Before Extraordinary Items – Adjusted for Common Stock Equivalents *divided by* ((Common Equity – Total t *plus* Common Equity – Total *t minus 1*) *divided by* 2)	(IBCOMQ /((CEQQ**t** + CEQQ(**t** – **1**))/**2**)) *** 100**
on Common Equity – Total	
Income Before Extraordinary Items – Adjusted for Common Stock Equivalents *divided by* Common Equity – Total	(IBCOMQ/CEQQ) *** 100**
on Gross Assets – Definition 1	
[Income Before Extraordinary Items *divided by* (Assets – Total/Liabilities and Stockholders' Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated) (Balance Sheet)]	[IBQ/(ATQ + DPACTQ)] *** 100**
on Gross Assets – Definition 2	
[Income Before Extraordinary Items *plus* Interest Expense) *divided by* (Assets – Total/Liabilities and Stockholders' Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated) (Balance Sheet)]	[(IBQ + XINTQ)/(ATQ + DPACTQ) *** 100]**
on Gross Assets – Definition 3	
[Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes – Total *divided by* Pretax Income)))) *divided by* (Assets – Total/Liabilities and Stockholders' Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated) (Balance Sheet)]	[(IBQ + (XINTQ ***** (**1** – (TXTQ/PIQ)))) /(ATQ + DPACTQ)] *** 100**
on Gross Assets – Definition 4	
[Income Before Extraordinary Items *plus* Interest Expense *plus* Noncontrolling Interest (Income Account)) *divided by* (Assets – Total/Liabilities and Stockholders' Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated) (Balance Sheet)]	[(IBQ + XINTQ + MIIQ)/(ATQ + DPACTQ)] *** 100**
on Gross Assets – Definition 5	
[Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes – Total *divided by* Pretax Income))) *plus* Noncontrolling Interest (Income Account)) *divided by* (Assets – Total/Liabilities and Stockholders' Equity – Total *plus* Depreciation, Depletion, and Amortization (Accumulated) (Balance Sheet)]	[(IBQ + (XINTQ ***** (**1** – (TXTQ/PIQ))) + MIIQ)/(ATQ + DPACTQ)] *** 100**
on Invested Capital – Definition 1A	
[Income Before Extraordinary Items *plus* Interest Expense *plus* Noncontrolling Interest (Income Account)] *divided by* Invested Capital – Total	((IBQ + XINTQ + MIIQ)/ICAPTQ) *** 100**
on Invested Capital – Definition 1B	
(Income Before Extraordinary Items *plus* (Interest Expense	((IBQ + (XINTQ ***** (**1** –

multiplied by (1 *minus* (Income Taxes – Total *divided by* Pretax Income))) *plus* Noncontrolling Interest (Income Account)) *divided by* Invested Capital – Total	(TXTQ/PIQ)) + MIIQ)/ICAPTQ) *** 100**)
on Invested Capital – Definition 2A	
(Income Before Extraordinary Items *plus* Interest Expense) *divided by* (Invested Capital – Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	((IBQ + XINTQ)/(ICAPTQ – MIBQ)) *** 100**
on Invested Capital – Definition 2B	
(Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes – Total *divided by* Pretax Income)))) *divided by* (Invested Capital – Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	((IBQ + (XINTQ ***** (**1** – (TXTQ/PIQ))))/(ICAPTQ – MIBQ)) *** 100**
on Invested Capital – Definition 3A	
(Income Before Extraordinary Items *plus* Interest Expense) *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *minus* Redeemable Noncontrolling Interest (Balance Sheet))	((IBQ + XINTQ)/(ICAPTQ + TXDITCQ – MIBQ)) *** 100**
on Invested Capital – Definition 3B	
(Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes – Total *divided by* Pretax Income)))) divided by(Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *minus* Redeemable Noncontrolling Interest (Balance Sheet))	((IBQ + (XINTQ ***** (**1** – TXTQ/PIQ))))/(ICAPTQ + TXDITCQ – MIBQ)) *** 100**
on Invested Capital – Definition 4A	
(Income Before Extraordinary Items *plus* Interest Expense *plus* Noncontrolling Interest (Income Account)) *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet))	((IBQ + XINTQ + MIIQ)/(ICAPTQ + TXDITCQ)) *** 100**
on Invested Capital – Definition 4B	
(Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes – Total *divided by* Pretax Income))) *plus* Noncontrolling Interest (Income Account)) *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet))	((IBQ + (XINTQ ***** (**1** – (TXTQ/PIQ))) + MIIQ)/(ICAPTQ + TXDITCQ)) *** 100**
on Property, Plant, and Equipment – Total (Net) – Definition 1	
Income Before Extraordinary Items *divided by* Property, Plant, and Equipment – Total (Net)	(IBQ/PPENTQ) *** 100**
on Property, Plant, and Equipment – Total (Net) – Definition 2	
(Income Before Extraordinary Items *plus* Interest Expense) *divided by* Property, Plant, and Equipment – Total (Net)	((IBQ + XINTQ)/PPENTQ) *** 100**
on Property, Plant, and Equipment – Total (Net) – Definition 3	
(Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes – Total *divided by* Pretax Income)))) *divided by* Property, Plant, and Equipment – Total (Net)	((IBQ + (XINTQ ***** (**1** – (TXTQ/PIQ))))/PPENTQ) *** 100**

on Property, Plant, and Equipment – Total (Net) – Definition 4	
(Income Before Extraordinary Items *plus* Interest Expense *plus* Noncontrolling Interest (Income Account)) *divided by* Property, Plant, and Equipment – Total (Net)	((IBQ + XINTQ + MIIQ)/PPENTQ) * 100
on Property, Plant, and Equipment – Total (Net) – Definition 5	
(Income Before Extraordinary Items *plus* (Interest Expense *multiplied by* (1 *minus* (Income Taxes – Total *divided by* Pretax Income))) *plus* Noncontrolling Interest (Income Account)) *divided by* Property, Plant, and Equipment – Total (Net)	((IBQ + (XINTQ * (1 – (TXTQ/PIQ))) + MIIQ)/PPENTQ) * 100
on Stockholders' Equity – Definition 1	
Income Before Extraordinary Items *divided by* Total Parent Stockholders' Equity	(IBQ/SEQQ) * 100
on Stockholders' Equity – Definition 2	
NA	NA

Pretax Return

on Net Operating Assets	
(Operating Income Before Depreciation *minus* Depreciation and Amortization) *divided by* (Property, Plant, and Equipment – Total (Net) *plus* Current Assets – Total *minus* Current Liabilities – Total) or Operating Income After Depreciation *divided by* (Property, Plant, and Equipment – Total (Net) *plus* Current Assets – Total *minus* Current Liabilities – Total)	((OIBDPQ – DPQ)/(PPENTQ + ACTQ – LCTQ)) * 100
on Total Earning Assets	
(Operating Income Before Depreciation *minus* Depreciation and Amortization) *divided by* (Property, Plant, and Equipment – Total (Net) *plus* Current Assets – Total) or Operating Income After Depreciation *divided by* (Property, Plant, and Equipment – Total (Net) *plus* Current Assets – Total)	((OIBDPQ – DPQ)/(PPENTQ + ACTQ)) * 100

Sales per $ Working Capital

Sales (Net) *divided by* (Current Assets – Total *minus* Current Liabilities – Total)	SALEQ/(ACTQ – LCTQ)

Working Capital as a Percentage of Sales

(Current Assets – Total *minus* Current Liabilities – Total) *divided by* Sales (Net)	((ACTQ – LCTQ)/SALEQ) * 100

Capitalization Ratios

Invested Capital

Definition 1	
Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Common Equity – Total *plus* Redeemable Noncontrolling Interest (Balance Sheet)	DLTTQ + PSTKQ + CEQQ + MIBQ
Common Equity – Total as a % of Invested Capital	(CEQQ/ICAPTQ) * 100
Common Equity – Total *divided by* (Long-Term Debt – Total	

plus Preferred Stock – Carrying Value *plus* Common Equity – Total *plus* Redeemable Noncontrolling Interest (Balance Sheet))	
Long-Term Debt – Total as a % of Invested Capital Long-Term Debt – Total *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Common Equity – Total *plus* Redeemable Noncontrolling Interest (Balance Sheet))	(DLTTQ/ICAPTQ) *** 100**
Redeemable Noncontrolling Interest (Balance Sheet) as a % of Invested Capital Redeemable Noncontrolling Interest (Balance Sheet) *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Common Equity – Total *plus* Redeemable Noncontrolling Interest (Balance Sheet))	(MIBQ/ICAPTQ) *** 100**
Preferred Stock – Carrying Value as a % of Invested Capital Preferred Stock – Carrying Value *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Common Equity – Total *plus* Redeemable Noncontrolling Interest (Balance Sheet))	(PSTKQ/ICAPTQ) *** 100**
Total Debt as a % of Invested Capital (Long-Term Debt – Total *plus* Debt in Current Liabilities) *divided by* Invested Capital – Total	((DLTTQ + DLCQ)/ICAPTQ) *** 100**
Definition 2 Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Common Equity – Total	DLTTQ + PSTKQ + CEQQ
Common Equity – Tangible as a % of Invested Capital Common Equity – Tangible *divided by* (Invested Capital – Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(CEQQ/(ICAPTQ – MIBQ)) *** 100**
Common Equity – Total as a % of Invested Capital Common Equity – Total *divided by* (Invested Capital – Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(CEQQ/(ICAPTQ – MIBQ)) *** 100**
Long-Term Debt as a % of Invested Capital Long-Term Debt *divided by* (Invested Capital – Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(DLTTQ/(ICAPTQ – MIBQ)) *** 100**
Preferred Stock – Carrying Value as a % of Invested Capital Preferred Stock – Carrying Value *divided by* (Invested Capital – Total *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(PSTKQ/(ICAPTQ – MIBQ)) *** 100**
Total Debt as a % of Invested Capital (Long-Term Debt – Total *plus* Debt in Current Liabilities) *divided by* (Invested Capital – Total *minus* Redeemable Noncontrolling Interest (Balance Sheet)	((DLTTQ + DLCQ)/(ICAPTQ – MIBQ)) *** 100**
Definition 3 Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Common Equity – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet)	DLTTQ + PSTKQ + CEQQ + TXDITCQ
Common Equity – Total as a % of Invested Capital Common Equity – Total *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit *minus*	(CEQQ/(ICAPTQ + TXDITCQ – MIBQ)) *** 100**

Redeemable Noncontrolling Interest (Balance Sheet))	
Deferred Taxes and Investment Tax Credit as a% of Invested Capital Deferred Taxes and Investment Tax Credit (Balance Sheet) *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(TXDITCQ/(ICAPTQ + TXDITCQ – MIBQ)) *** 100**
Long-Term Debt as a % of Invested Capital Long-Term Debt – Total *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(DLTTQ/(ICAPTQ + TXDITCQ – MIBQ)) *** 100**
Preferred Stock – Carrying Value as a % of Invested Capital Preferred Stock – Carrying Value *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit *minus* Redeemable Noncontrolling Interest (Balance Sheet))	(PSTKQ/(ICAPTQ + TXDITCQ – MIBQ)) *** 100**
Total Debt as a % of Invested Capital (Long-Term Debt – Total *plus* Debt in Current Liabilities) *divided by* (Invested Capital – Total *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *minus* Redeemable Noncontrolling Interest (Balance Sheet))	((DLTTQ + DLCQ)/(ICAPTQ + TXDITCQ – MIBQ)) *** 100**
Definition 4 Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Redeemable Noncontrolling Interest (Balance Sheet) *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *plus* Common Equity – Total	DLTTQ + PSTKQ + MIBQ + TXDITCQ + CEQQ
Common Equity – Total as a % of Invested Capital Common Equity – Total *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Redeemable Noncontrolling Interest (Balance Sheet) *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *plus* Common Equity – Total)	(CEQQ/(ICAPTQ + TXDITCQ)) *** 100**
Deferred Taxes and Investment Tax Credit as a % of Invested Capital Deferred Taxes and Investment Tax Credit *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Redeemable Noncontrolling Interest (Balance Sheet) *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *plus* Common Equity – Total)	(TXDITCQ/(ICAPTQ + TXDITCQ)) *** 100**
Long-Term Debt as a % of Invested Capital Long-Term Debt *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Redeemable Noncontrolling Interest (Balance Sheet) *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *plus* Common Equity – Total)	(DLTTQ/(ICAPTQ + TXDITCQ)) *** 100**
Redeemable Noncontrolling Interest (Balance Sheet) as a % of Invested Capital Redeemable Noncontrolling Interest (Balance Sheet) *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Redeemable Noncontrolling Interest (Balance Sheet) *plus* Deferred Taxes and Investment Tax Credit	(PSTKQ/(ICAPTQ + TXDITCQ)) ***** 100

(Balance Sheet) *plus* Common Equity – Total)	
Total Parent Stockholders' Equity – Carrying Value as a % of Invested Capital Preferred Stock – Carrying Value *divided by* (Long-Term Debt – Total *plus* Preferred Stock – Carrying Value *plus* Redeemable Noncontrolling Interest (Balance Sheet) *plus* Deferred Taxes and Investment Tax Credit (Balance Sheet) *plus* Common Equity – Total)	(SEQ/(ICAPT + TXDITC)) ***** 100
Total Debt as a % of Invested Capital (Long-Term Debt **–** Total *plus* Debt in Current Liabilities) *divided by* (Invested Capital **–** Total *plus* Deferred Taxes and Investment Tax Credit(Balance Sheet))	((DLTTQ + DLCQ)/(ICAPTQ + TXDITCQ)) *** 100**

Criteria of Financial Soundness

(Item) as a Percentage of Average Long-Term Debt

Interest (Interest Expense *divided by* ((Long-Term Debt – Total t *plus* Long-Term Debt – Total *t minus 1*) *divided by* 2)	(XINTQ/((DLTTQ**t** + DLTTQ(**t** – **1**))/**2**)) *** 100**

(Item) as a Percentage of Average Total Debt

Interest Interest Expense *divided by* ((Long-Term Debt – *Total t plus* Long-Term Debt – Total *t minus 1 plus* Debt in Current Liabilities *t plus* Debt in Current Liabilities *t minus 1*) *divided by* 2)	(XINTQ/((DLTTQ**t** + DLTTQ(**t** – **1**) + DLCQ**t** + DLCQ(**t** – **1**))/**2**)) *** 100**

(Item) as a Percentage of Current Assets

Cash and Short-Term Investments Cash and Short-Term Investments *divided by* Current Assets – Total	(CHEQ/ACTQ) *** 100**
Current Assets – Other Current Assets – Other *divided by* Current Assets – Total	(ACOQ/ACTQ) *** 100**
Inventory Inventories – Total *divided by* Current Assets – Total	(INVTQ/ACTQ) *** 100**
Receivables Receivables – Total *divided by* Current Assets – Total	(RECTQ/ACTQ) *** 100**

(Item) as a Percentage of Total Assets

Assets – Other Assets – Other *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	(AOQ/ATQ) *** 100**
Current Assets Current Assets – Total *divided by* Assets – Total/Liabilities and Stockholder's Equity – Total	(ACTQ/ATQ) *** 100**
Property, Plant, and Equipment – Total (Gross) Property, Plant, and Equipment – Total (Gross) *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	(PPEGTQ/ATQ) *** 100**

Property, Plant , and Equipment – Total (Net)	
Property, Plant, and Equipment – Total (Net) *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	(PPENTQ/ATQ) *** 100**
Total Debt	
(Long-Term Debt – Total *plus* Debt in Current Liabilities) *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	((DLTTQ + DLCQ)/ATQ) *** 100**

(Item) as a Percentage of Total Debt

Short-Term Debt	
Debt in Current Liabilities *divided by* (Long-Term Debt – Total *plus* Debt in Current Liabilities	(DLCQ/(DLCQ + DLTTQ)) *** 100**

(Item) as a Percentage of Total Liabilities

Current Liabilities – Total *divided by* Liabilities – Total	(LCTQ/LTQ) *** 100**
Deferred Taxes and Investment Tax Credit	
Deferred Taxes and Investment Tax Credit (Balance Sheet) *divided by* Liabilities – Total	(TXDITCQ/LTQ) *** 100**
Interest	
Interest Expense *divided by* Liabilities – Total	(XINTQ/LTQ) *** 100**
Liabilities – Other	
Liabilities – Other *divided by* Liabilities – Total	(LOQ/LTQ) *** 100**
Long-Term Debt	
Long-Term Debt *divided by* Liabilities – Total	(DLTTQ/LTQ) *** 100**
Noncontrolling Interest	
Redeemable Noncontrolling Interest (Balance Sheet) *divided by* Liabilities – Total	(MIBQ/LTQ) *** 100**
Preferred Stock – Carrying Value	
Preferred Stock – Carrying Value *divided by* Liabilities – Total	(PSTKQ/LTQ) *** 100**

(Item) as a Percentage of Total Liabilities and Stockholders' Equity

Common Equity – Total	
Common Equity – Total *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	(CEQQ/ATQ) *** 100**
Stockholders' Equity – Total	
Total Parent Stockholders' Equity *divided by* Assets – Total/Liabilities and Stockholders' Equity – Total	(SEQQ/ATQ) *** 100**

Current Ratio

Current Assets – Total *divided by* Current Liabilities – Total	ACTQ/LCTQ

Debt/Equity Ratios

Long-Term Debt – Definition 1	
Long-Term Debt – Total *divided by* Common Equity – Total	DLTTQ/CEQQ

Long-Term Debt – Definition 2	
NA	NA
Long-Term Debt – Definition 3	
Long-Term Debt – Total *divided by* Total Parent Stockholders' Equity	DLTTQ/SEQQ
Long-Term Debt – Definition 4	
NA	NA
Total Liabilities – Definition 1	
Liabilities – Total *divided by* Common Equity – Total	LTQ/CEQQ
Total Liabilities – Definition 2	
NA	NA
Total Liabilities – Definition 3	
Liabilities – Total *divided by* Total Parent Stockholders' Equity	LTQ/SEQQ
Total Liabilities – Definition 4	
NA	NA

Interest Coverage

After-tax	
(Interest Expense *plus* Income Before Extraordinary Items) *divided by* Interest Expense	(XINTQ + IBQ)/XINTQ
Pretax	
(Interest Expense *plus* Pretax Income) *divided by* Interest Expense	(XINTQ +PIQ)/XINTQ

Quick Ratio (Acid Test)

(Cash and Short-Term Investments *plus* Receivables – Total) *divided by* Current Liabilities – Total	(CHEQ + RECTQ)/LCTQ

Management Decision Statistics

(Item) as a Percentage of Cash Flow

Cash Dividends – Definition 1	
Cash Dividends (Statement of Cash Flows) *divided by* (Income Before Extraordinary Items (Statement of Cash Flows) *plus* Depreciation and Amortization (Statement of Cash Flows))	(DVY/(IBCY + DPCY)) *** 100**
Cash Dividends – Definition 2	
Cash Dividends (Statement of Cash Flows) *divided by* (Income Before Extraordinary Items (Statement of Cash Flows) *plus* Depreciation and Amortization (Statement of Cash Flows) *plus* Deferred Taxes (Statement of Cash Flows) *plus* Equity in Net Loss (Earnings) (Statement of Cash Flows) *plus* Extraordinary Items and Discontinued Operations (Statement of Cash Flows) *plus* Noncontrolling Interest (Income Account))	(DVY/(IBCY + DPCY + TXDCY + ESUBCY + XIDOCY + MIIQ)) *** 100**
Cash Dividends – Definition 3	
Cash Dividends (Statement of Cash Flows) *divided by*	(DVY/(IBCY + DPCY +

(Income Before Extraordinary Items (Statement of Cash Flows) *plus* Extraordinary Items and Discontinued Operations (Statement of Cash Flows)*plus* Depreciation and Amortization (Statement of Cash Flows) *plus* Deferred Taxes (Statement of Cash Flows) *plus* Equity in Net Loss (Earnings) (Statement of Cash Flows)	XIDOCY + TXDCY + ESUBCY)) *** 100**

(Item) as a Percentage of Income Before Extraordinary Items – Adjusted for Common Stock Equivalents

Cash Dividends	
Cash Dividends (Statement of Cash Flows) *divided by* Income Before Extraordinary Items – Adjusted for Common Stock Equivalents	(DVY/IBADJQ) *** 100**

(Item) as a Percentage of Property, Plant, and Equipment – Total (Gross)

Depreciation Expense	
Depreciation and Amortization *divided by* Property, Plan, and Equipment – Total (Gross)	(DPQ/PPEGTQ) *** 100**
Property, Plant, and Equipment – Total (Net)	
Property, Plan, and Equipment – Total (Net) *divided by* Property, Plant, and Equipment – Total (Gross)	(PPENTQ/(DPACTQ + PPENTQ)) *** 100**

(Item) as a Percentage of Property, Plant, and Equipment – Total (Net)

Depreciation Expense	
Depreciation and Amortization *divided by* Property, Plant, and Equipment – Total (Net)	(DPQ/PPENTQ) *** 100**

Chapter 3
Security Data

Security data identifies, defines, and describes the securities represented in Compustat Xpressfeed, as well as reports the securities' historical and current market data. This chapter demonstrates how you can retrieve security data from Xpressfeed for use in your financial analysis.

Retrieving Security Data with Key Mnemonics

Each security data group has pre-defined key mnemonics. *Compustat Xpressfeed Technical Guide* contains the most current list of all Xpressfeed data groups and the key mnemonics defined for them.

Examples of the security key data items in Xpressfeed primary packages include the following items that are listed by name, mnemonic and definition:

Table 14. Examples of security key data items

Key Data Item	Mnemonic	Definition
Data Date	DATADATE	This item indicates the time period to which each item applies. For example, for a Security Daily Price data item, Data Date represents the trade date for the high, low, close and volume.
Data Item	DATAITEM	This item indicates the mnemonic(s) to which footnote(s) apply. For example, in the Security Monthly Dividend Footnote (sec_mdivfn) data group, the values for DATAITEM might be CHEQVM, DVPSPM and DVPSXM.
Global Company Key	GVKEY	This item uniquely identifies all companies in the database. GVKEY can be used in place of company tickers, CUSIPs or SEDOLs.

Key Data Item	Mnemonic	Definition
Issue ID	IID	This 3-character, alphanumeric code creates a unique identifier for each company issue. The code consists of a 2-digit issue number plus a 1-character alpha code indicating the stock exchange trading the issue. C = Canadian W = International (null) = United States

Each key data item is represented by a key mnemonic. See *Compustat Xpressfeed Techical Guide* for a list of key mnemonics in each Compustat Xpressfeed package.

Examples of the security key mnemonics in a primary package are listed below:

Table 15. Security key mnemonics

		Key Mnemonics		
Data Group	Data Group Description	Permanent Identifier	Primary Identifier	Secondary Identifier(s)
security	Securities	GVKEY	IID	
sec_ann	Security Financial Annual Descriptor	GVKEY	IID	DATADATE
sec_annfd	Security Financial Annual Item	GVKEY	IID	DATADATE
sec_divid*	Security Dividends	GVKEY	IID	DATADATE CURCDDV
sec_dprc*	Security Daily Prices	GVKEY	IID	DATADATE CURCDD
sec_dtrt	Security Daily Total Return	GVKEY	IID	DATADATE
sec_idesc	Security Financial Interim Descriptors Industry Format	GVKEY	IID	DATADATE INDFMT CONSOL POPSRC FYR
sec_ifnd	Security Financial Interim Item Fundamentals Industry Format	GVKEY	IID	DATADATE INDFMT CONSOL POPSRC FYR DATAFMT
sec_ifnt	Security Financial Interim Fundamentals Industry Format – Footnotes	GVKEY	IID	DATADATE INDFMT CONSOL POPSRC FYR DATAFMT
sec_mdivfn	Security Monthly Dividend Footnotes	GVKEY	IID	DATADATE DATAITEM
sec_msptfn	Security Monthly Stock Split Footnotes	GVKEY	IID	DATADATE DATAITEM
sec_mth	Security Monthly Descriptor	GVKEY	IID	DATADATE
sec_mthdiv	Security Monthly Dividend	GVKEY	IID	DATADATE
sec_mthprc	Security Monthly Item	GVKEY	IID	DATADATE

Data Group	Data Group Description	Key Mnemonics		
		Permanent Identifier	Primary Identifier	Secondary Identifier(s)
sec_mthspt	Security Monthly Stock Splits	GVKEY	IID	DATADATE
sec_mthtrt	Security Monthly Total Return	GVKEY	IID	DATADATE
sec_shortint	Security Short Interest	GVKEY	IID	DATADATE
sec_spind	S&P Index Securities – Pre GICS	GVKEY	IID	DATADATE
sec_split*	Security Stock Split	GVKEY	IID	DATADATE

*Not available in Vendor subscriptions

Xpressfeed data is sorted into data groups according to a data infrastructure based on data classes (see the *Compustat Xpressfeed: Understanding the Data* manual). There are three security data classes in Xpressfeed:

- General Security
- Security Descriptors
- Market

In this chapter, we will show you how to retrieve each of these classes of data using key mnemonics in hypothetical scenarios.

Extracting General Security Data

Scenario: You want to learn more about the securities of a company that you have extensively researched, BP PLC. General security data can introduce you to this information and that general security data is located in the Security (security) data group (see *Compustat Xpressfeed: Understanding the Data* for more information in this about data groups). However, you first need to know the Issue IDs (IID) of the company's securities to extract data from that data group with a key mnemonic. Key mnemonics are listed in *Compustat Xpressfeed Technical Guide*. The Global Company Key (GVKEY) for BP PLC is 002410.

Your extraction of the IIDs from the Security data group can be as simple as exporting all data from the group to a text file and performing a text search for **002410**. Your search for data will be located in all the data records anchored by that GVKEY. Alternatively, you can use a more sophisticated application designed to extract Xpressfeed data for analysis purposes. However, no matter which method of extraction you choose, you will learn that there are multiple IIDs representing the securities of BP PLC.

Table 16. Examples of a company's multiple issues

GVKEY	IID
002410	01
002410	01W
002410	02
002410	02W
002410	03W
002410	90
002410	90C
002410	91
002410	92

The data definition found in the *Compustat Data Guide*, indicates that the IID is comprised of an issue-identifying numeric component and a population-identifying alpha component.

The 2-digit numeric component distinguishes an issue from other issues of the company. A 2-digit numeric component of 90 or above, indicates the security is an American Depository Receipt (ADR).

The single alpha-character component represents the exchange that the issue is traded on. **C** indicates that the security is traded on a Canadian exchange, **W** indicates that the security is traded on a non-Canadian or non-U.S. exchange (), and no alpha character indicates the security is traded on a U.S. exchange.

Now that you have identified all the securities for BP PLC in Xpressfeed, you can begin to investigate each. For example, if you specify:

- GVKEY = 002410
- IID = 90

You will extract data that includes the following information:

Table 17. Examples of retrieved general security data

Mnemonic	Data Item	Value	Description
CUSIP	CUSIP Number	G12793181	
DSCI	Security Description	ADR	American Depositary Receipt
EXCHG	Stock Exchange	11	New York
EXCNTRY	Stock Exchange Country Code	USA	United States
ISIN	International Security Identification Number	US0556221044	
SECSTAT	Security Status Marker	A	*Security is currently active*
SEDOL	SEDOL Number	2142621	
TIC	Ticker/Trading Symbol	BP	
TPCI	Issue Type	F	*American Depository Receipt (ADR)*

From here, you can choose to investigate more of the securities of BP PLC that you identified in general terms or you can move onto looking into the market data of one of the securities.

Extracting Security Descriptor Data

Scenario: Security descriptor data is located in the Security Annual Descriptor (sec_ann) data group and can provide more information about how the security's market data is presented. You will need to know the company's Global Company Key (GVKEY) of the company, the Issue ID (IID) of the security, and the Data Date (DATADATE) of the data to extract data from that data group with a key mnemonic(s).

From the previous example, you already know the GVKEY and IID. Decide upon the date of the data that you want to look at and specify:

- GVKEY = 002410
- IID = 02W
- DATADATE = 20030108
- Data Group = sec_ann

You will likely extract data that includes the following information:

Table 18. Examples of retrieved security descriptor data

Mnemonic	Data Item	Value

Mnemonic	Data Item	Value
AJEXI	Adjustment Factor (Issue) – Cumulative by Ex-Date – Annual	1
CURCDI	ISO Currency Code – Issue	USD (U.S. Dollar)
FYR	Fiscal Year-end Month	12 (December)

Now that you know the adjustment factor to use, you can retrieve market data for this security.

Extracting Market Data

Scenario: If you choose to look at BP PLC's daily market data, *Compustat Xpressfeed: Understanding the Data* tells you that class of daily data is located in the Security Daily Price (sec_dprc) data group. You will need to know the Data Date (DATADATE) of the company, and the Issue ID (IID) and the Data Date (DATADATE) of the security data to extract data from that data group with a key mnemonic(s). From your extraction of security descriptor data, you already know the values for all the key mnemonics. For example, to retrieve market data for issue 02W of BP PLC on January 8, 2003, specify:

- GVKEY = 002410
- IID = 02W
- DATADATE = 20030108
- Data Group = sec_dprc

You will likely extract data that includes the following information:

Table 19. Examples of retrieved security market data

Mnemonic	Data Item	Value
AJEXDI	Adjustment Factor (Issue) – Cumulative by Ex-Date – Daily	1
CSHOC	Shares Outstanding	7232838
CURCDD	ISO Currency Code – Daily	GBP
PRCCD	Price – Close – Daily	1.4
PRCSTD	Price Status Code –- Daily	10

Financial Formulas for Security Data

Standard & Poor's has developed a number of pre-defined formulas and calculations for security data. These commonly used formulas are by no means all-inclusive; rather, they offer a starting point upon which you can expand. The formulas and calculations included in this chapter pertain to security data. Many of the data items used in the financial formulas for security data are located in the:

- Security Daily Price (sec_dprc) data group
- Security Daily Total Return (sec_dtrt) data group
- Security Monthly Price (sec_mthprc) data group
- Security Monthly Dividend (sec_mthdiv) data group
- Security Monthly Total Return (sec_mthtrt) data group
- Index Quarterly Fundamental (idx_qrt) data group
- Company Quarterly/Interim Fundamental (co_ifndq, co_ifndsa, co_ifndytd) data group

Note: The formula will be presented in the right column using the mnemonics of Xpressfeed items.

Common Shares Outstanding – Adjusted

Common Shares Outstanding *multiplied by* Adjustment Factor (Cumulative) by Ex-Date	CSHO * AJEX

Common Shares Traded – Adjusted

Common Shares Traded *multiplied by* Adjustment Factor (Cumulative) by Ex-Date	CSHTRQ * AJEXQ

Common Shares Used to Calculate Earnings per Share (Basic) – Adjusted

Common Shares Used to Calculate Earnings per Share – (Basic) *multiplied by* Adjustment Factor (Cumulative) by Ex-Date	CSHPRQ * AJEXQ

Common Shares Used to Calculate Earnings per Share – 12-Months Moving – Adjusted

Common Shares Used to Calculate Earnings per Share – 12 Months Moving *multiplied by* Adjustment Factor (Cumulative) by Ex-Date	CSH12Q * AJEXQ

Price to Earnings Ratio(s)

High Price – Daily/Earnings Per Share – 12-Months Moving	PRCHD / EPSX12
Low Price – Daily/Earnings Per Share – 12-Months Moving	PRCLD / EPSX12
Closing Price – Daily/Earnings Per Share – 12-Months Moving	PRCCD / EPSX12

Price – High to Earnings as a Percentage of Price – Low to Earnings

((Price – High/Earnings per Share)/ (Price – Low/Earnings per Share))*** 100**	((PRCHD /EPS)/(PRCLD /EPS))*** 100**

Average Monthly Price

Sum of all High Price – Monthly values/the number of months represented.	$\sum$ PRCHM /12
Sum of all Low Price – Monthly values/the number of months represented.	$\sum$ PRCLM / 6
Sum of all Closing Price – Monthly values/the number of months represented.	$\sum$ PRCCM / 3

Current Price Deviation from Mean Price

Sum of all months [Closing Price – Monthly/ ((High Price – Monthly + Low Price – Monthly)/2)/number of months]	$\sum n \frac{PRCCM}{(PRCHM_n + PRCLM_n)/2)/n}$

Dividend Yield(s)

(Annualized Dividend Rate / High Price – Monthly) *** 100**	(DVRATE /PRCHM) *** 100**
(Annualized Dividend Rate / Low Price – Monthly) *** 100**	(DVRATE /PRCLM) *** 100**
(Annualized Dividend Rate / Closing Price – Monthly) *** 100**	(DVRATE/PRCCM) *** 100**

Market Value of Shares Traded

Closing Price – Daily ***** Trading Volume – Daily	PRCCD ***** CSHTRD

Total Return Factor

The Total Return concepts are annualized rates of return reflecting monthly price appreciation plus reinvestment of monthly dividends and the compounding effect of dividends paid on reinvested dividends. The Data Groups and Items for Monthly Total Return Factor (TRFM) are:

Data Item	Mnemonic	Data Group
Dividends per Share – Ex Date – Monthly	DVPSXM	sec_mthdiv
Cash Equivalent Distributions per Share – Monthly	CHEQVM	sec_mthdiv
Price - Close - Monthly	PRCCM	sec_mthprc

Starting in the time period you want to begin calculating the return, set the Monthly Total Return Factor (TRFM) to 1.

Total Return Factor current month (TRFM)	(((sec_mthdiv.DVPSXM + sec_mthdiv.CHEQVM)/sec_mthprc.PRCCM)*TRFM prior month)+TRFM prior month)

If DVPSXM or CHEQVM is not available, treat as 0 and calculate. If PRCCM is not available for 1 period, average the close price from the month immediately preceding with the close price from the month immediately following the month with the missing close price. If PRCCM is not available for more than one consecutive month, reinitialize the total return factor to 1 and begin a new calculation when the close price data availability permits.

Indexed Total Return

Index Total Return is calculated by multiplying the current period adjusted close price by the current period Total Return Factor and then dividing the result by the product of the adjusted close price multiplied by the Total Return Factor from prior period (1 year, 3 year, 5 year, or 10 year). Multiply by the final result by 100.

1 Year Indexed Total Return	(((PRCCM/AJEXM)*TRFM)/((PRCCM/AJEXM)*TRFM)[-12M])*100
3 Year Indexed Total Return	(((PRCCM/AJEXM)*TRFM)/((PRCCM/AJEXM)*TRFM)[-36M])*100
5 Year Indexed Total Return	(((PRCCM/AJEXM)*TRFM)/((PRCCM/AJEXM)*TRFM)[-60M])*100
10 Year Indexed Total Return	(((PRCCM/AJEXM)*TRFM)/((PRCCM/AJEXM)*TRFM)[-120M])*100

Total Return

Total Return is calculated by multiplying the current period adjusted close price by the current period Total Return Factor and the dividing the result by the product of the adjusted close price

multiplied by the Total Return Factor from prior period (1 year, 3 year, 5 year, or 10 year). Apply the exponent and then multiply the final result by 100.

1 Year Total Return	((((PRCCM/AJEXM)*TRFM)/((PRCCM/AJEXM)*TRFM [-12M]))-1)*100
3 Year Total Return	(((((PRCCM/AJEXM)*TRFM)/((PRCCM/AJEXM)*TRFM [-36M]))^(1.0/3.0))-1)*100
5 Year Total Return	(((((PRCCM/AJEXM)*TRFM)/((PRCCM/AJEXM)*TRFM) [-60M]))^(1.0/5.0))-1)*100
10 Year Total Return	(((((PRCCM/AJEXM)*TRFM)/((PRCCM/AJEXM)*TRFM) [-120M]))^(1.0/10.0))-1)*100

Chapter 4
Index Data

Index data is unique in that it identifies, defines, and describes both indices and index constituents represented in Compustat Xpressfeed, as well as reports the indices' historical and current market data. This chapter demonstrates how you can retrieve index data from Xpressfeed for use in your financial analysis.

Retrieving Index Data with Key Mnemonics

Each index data group has pre-defined key mnemonics. Examples of the index key data items in Xpressfeed primary packages include the following items that are listed by name, mnemonic and definition:

Table 20. Examples of security key data items

Key Data Item	Mnemonic	Definition
Data Date	DATADATE	This item indicates the time period to which each item applies.
Effective From Date	FROM	This item indicates date from which the data is effective.
Global Company Key	GVKEY	This item uniquely identifies all companies in the database. GVKEY can be used in place of company tickers, CUSIPs or SEDOLs
Global Index Key	GVKEYX	This item uniquely identifies all indexes in the database.
Issue ID	IID	This 3-character, alphanumeric code creates a unique identifier for each company issue. The code consists of a 2-digit issue number plus a 1-character alpha code indicating the stock exchange trading the issue. C = Canadian W = International (null) = United States
Index ID	INDEXID	This item identifies the major index.

Each key data item is represented by a key mnemonic. See *Compustat Xpressfeed Technical Guide* for a list of key mnemonics in each Compustat Xpressfeed package.

Examples of the index key mnemonics in a primary package are as follows:

Table 21. Index key mnemonics

		Key Mnemonics		
Data Group	Data Group Description	Permanent Identifier	Primary Identifier	Secondary Identifier(s)
idx_index	Indexes	GVKEYX		
idx_ann	Annual Index Fundamentals	GVKEYX	DATADATE	
idx_anndes	Annual Index Fundamental Descriptor	GVKEYX	DATADATE	
idx_daily	Index Daily Market Values	GVKEYX	DATADATE	
idx_mth	Index Monthly Market Values	GVKEYX	DATADATE	
idx_qrt	Quarterly Index Fundamentals	GVKEYX	DATADATE	
idx_qrtdes	Quarterly Index Fundamental Descriptor	GVKEYX	DATADATE	
*sec_spind	S&P Index Securities	GVKEY	IID	DATADATE
*spind	S&P Indexes – Pre GICS	GVKEY		
*spind_dly	S&P Index Daily – Pre GICS	GVKEY	DATADATE	
*spind_mth	S&P Index Monthly – Pre GICS	GVKEY	DATADATE	

* These reference data groups were reclassified as inactive as of December 31, 2001, and their data has not been updated subsequent to that date.

Xpressfeed data is sorted into data groups according to a data infrastructure based on data classes. There are six index data classes in Xpressfeed:

- Constituent Mapping
- Constituent Descriptors
- General Index
- Index Descriptors
- Index Market
- Index Fundamental

In this chapter, we will show you how to retrieve each of these classes of data using key mnemonics in hypothetical scenarios.

Extracting Index Constituent Mapping Data

Scenario: After initial research about Brown-Forman – CL in company and security data, you already know

- the company's Global Company Key is 002435
- the company produces, imports, exports, bottles and markets wines, distilled spirits and craft beers; and produces and sells china, crystal, jewelry, flatware, linens, luggage and accessories. Among its stable of well-known brands, the company is best known for its popular Jack Daniel's Tennessee Whiskey
- the company was incorporated in Delaware, but headquartered in Louisville, Kentucky
- the company's first issue, 01, is listed in the U.S. and is Class-B common stock
- the company's second issue, 02, is listed in the U.S. and is Class-A common stock

Now, you want to know about the industry comparisons and performance of Brown-Forman's first issue. First, you must find out which indices Brown-Forman – CL is a constituent of. Constituent mapping data can tell you this information and constituent mapping data is located in the Index Constituent Mapping History (idxcst_his) data group (see *Compustat Xpressfeed: Understanding the Data*). Key mnemonics for this data group are:

1. Global Company Key (GVKEY), which identifies the specific company
2. Issue ID (IID), which identifies the specific issue
3. Data Date (DATADATE), which identifies the reporting period you are interested in

To extract all index constituency history for Brown-Forman –CL, specify:

- GVKEY = 002435
- IID = 01
- Data Group = idxcst_his

You will extract data that includes the following information:

Table 22. Examples of retrieved index history constituent data

GVKEYX	CONMX	FROM	THRU
000003	S&P 500 COMP-LTD	19941230	--
026114	S&P 500/BARRA VALUE INDEX	19941230	20020623
031855	S&P 1500 SUPER COMPOSITE	19941230	20030731
128999	SP1500 CONSUMER STAPLES .S	19941230	20030731
129001	SP500 CONSUMER STAPLES .S	19941230	--
129658	SP1500 FOOD BEV&TOBACCO .G	19941230	20030731
129678	SP500 FOOD BEV&TOBACCO .G	19941230	--
131322	SP1500 BEVERAGES .I	19941230	20030731
131327	SP500 BEVERAGES .I	19941230	--
132042	SP1500 BREWERS .SI	19941230	20001130
132044	SP500 BREWERS .SI	19941230	20001130
132046	SP1500 DISTILLER&VINTNER .SI	20001201	20030731
132048	SP500 DISTILLER&VINTNER .SI	20001201	--
026113	S&P 500/BARRA GROWTH INDEX	20020624	--
031855	S&P 1500 SUPER COMPOSITE	20030804	--
128999	SP1500 CONSUMER STAPLES .S	20030804	--
129658	SP1500 FOOD BEV&TOBACCO .G	20030804	--
131322	SP1500 BEVERAGES .I	20030804	--
132046	SP1500 DISTILLER&VINTNER .SI	20030804	--

As you can see, Brown-Forman -CL has substantial history with both the S&P 500 COMP-LTD and the S&P 1500 SUPER COMPOSITE, as well as various industry indexes.

Extracting Constituent Descriptor Data

Scenario: Before you look any further into Brown-Forman –CL, you might want to look at the company's index constituent descriptor data that is located in the S&P Index Descriptor (spidx_cst) data group. Key mnemonics for this data group are:

1. Global Company Key (GVKEY), which identifies the specific company
2. Issue ID (IID), which identifies the specific issue

3. Data Date (DATADATE), which identifies the reporting period your interested in
4. S&P Major Index (INDEXID), which identifies the S&P Index tracking the security

If you choose to look at the information for Brown-Forman -CL as a constituent of the S&P 500 COMP-LTD on June 29, 2001, you will extract data that includes the following information.

Table 23. Examples of retrieved constituent descriptor data.

Mnemonic	Data Item	Value
CONMX	Constituent Name	Brown-Forman Corp
CONTYPE	Constituent Type	SPGICX
CONVAL	Constituent Value	30201020
CUSIPX	Constituent CUSIP	115637209
EXCHGX	Constituent Exchange	--
TICX	Constituent Ticker	BF.B

You now know that Brown-Forman -CL is a constituent of an index conforming to the Global Industry Classification Standard (GICS), the S&P 500 COMP-LTD. GICS was developed by Standard & Poor's and Morgan Stanley Capital International (MSCI) in 1999 in response to the global financial community's need for one complete, consistent set of global sector and industry definitions that reflects today's economy and is flexible enough to change as the investment world changes.

Extracting General Index Data

Scenario: You want a better picture of the S&P 500 as a whole before you compare the performance of Brown-Forman – CL to it. You can begin to pull the big picture together with general index data, which is located in the Indexes (idx_index) data group. The Global Index Key (GVKEYX) is the only key mnemonic for the Indexes data group.

When you retrieved the constituent history data you learned the GVKEYX for the S&P500 is 000003 and if you specify the GVKEYX as 000003, you will extract data that includes the following information:

Table 24. Examples of retrieved general index data

Mnemonic	Data Item	Value
CONM	Index Name	S&P 500 COMP-LTD
IDX13KEY	13 Character Key	0000000000500
INDEXCAT	Index Category Code	S&P
INDEXGEO	Index Geographical Area	USA
INDEXID	S&P Major Index ID	500
INDEXTYPE	Index Type	LGCAP
INDEXVAL	Index Value	500
TIC	Ticker/Trading Symbol	I0003
TICI	Issue Trading Ticker	I0003

Extracting Index Descriptor Data

Scenario: Before you look at the annual fundamental data for the S&P 500, it might be a good idea to look at the index descriptor data for the annual fundamental data. This class of data is located in the Index Annual Descriptor (idx_anndes) data group. The Global Index Key (GVKEYX) and Data Date (DATADATE) are the key mnemonics for the Index Annual Descriptor data group.

Specify:

- GVKEYX = 000003
- DATADATE = 20021231
- Data Group = idx_anndes

You will extract data that includes the following information:

Table 25. Examples of retrieved index descriptor data

Mnemonic	Data Item	Value
SPEQA	Percent of Equity	99
SPNOA	Number of Companies	500
YEAR	Data Year	2002

Extracting Index Market Data

Scenario: You want to look at the market results for the S&P 500 also. *T*his class of data is located in the Index Daily (idx_daily) data group. The Global Index Key (GVKEYX) and Data Date (DATADATE) are the key mnemonics for the Index Daily data group.

Specify

- GVKEYX = 000003
- DATADATE = 20021231
- Data Group = idx_daily

You will extract data that includes the following information:

Table 26. Examples of retrieved fundamental data.

Mnemonic	Data Item	Value
PRCCD	Index Price – Close	879.82
PRCHD	Index Price – High	881.83
PRCLD	Index Price – Low	869.43

Extracting Index Fundamental Data

Scenario: Now that you know more about the S&P 500 Index in general, you can look at the annual fundamental data for it. This class of data is located in the Index Annual (idx_ann) data group. The Global Index Key (GVKEYX) and Data Date (DATADATE) are the key mnemonics for the Index Annual data group.

Specify:

- GVKEYX = 000003
- DATADATE = 20021231
- Data Group = idx_ann

You will extract data that includes the following information:

Table 27. Examples of retrieved index fundamental data

Mnemonic	Data Item	Value
AO	Assets - Other	198.331070494256
AP	Accounts Payable	472.460287257007
AT	Assets - Total	2049.06727656009
CAPS	Capital Surplus	174.26097434499
CAPX	Capital Expenditures	40.1499400020245
CEQ	Common Equity - Total	320.277362574075

Mnemonic	Data Item	Value
CHE	Cash and Equivalents	201.807664927814
COGS	Cost of Goods Sold	435.64005980133
DD1	Debt - Due in 1st Year	52.7098717150582
DLC	Debt in Current Liabilities	337.405014691014
DLTT	Long Term Debt - Total	417.014125162632
DVP	Preferred Cash Dividends	.333999497515382
ICAPT	Invested Capital - Total	730.391783864282
INTAN	Intangibles	147.9125161322
INVT	Inventory - Total	146.376490278376
LCT	Current Liabilities - Total	165.460218233327
LT	Liabilities - Total	1713.75640675052
NI	Net Income	9.5515541012253
NOPI	Nonoperating Income	-.253705048312772
NP	Notes Payable	284.695186384168
PI	Pretax Income	48.1444345831197
PSTK	Preferred Stock	4.58282233800136
RE	Retained Earnings	177.822944050479
RECT	Receivables - Total	637.019087840922
SALE	Sales	663.059023487112
SPI	Special Items	-19.0812902582692
SSTK	Sale of Stock	6.6540143675532
TSTK	Treasury Stock - Total	61.1054452637631
TXP	Income Taxes Payable	8.73955845433424
TXR	Income Tax Refund	.410153128827187
TXT	Income Taxes - Total	19.5722418056437
XACC	Accrued Expenses	36.5551414252254
XINT	Interest Expense	30.2511184661566

Retrieving Index Data for Specific Data Items

There will be many reasons that you will want to extract data from specific data items, including those mentioned earlier in this chapter, as well as other reasons, such as:

- identifying all the constituents of an index
- extracting earnings per share data for an index

Identifying the Constituents of the S&P 500

To retrieve data that identifies the constituents of the S&P 500, knowing what class of data contains such information is helpful. *Compustat Xpressfeed: Understanding the Data* provides examples of data items in the constituent descriptor class of data. Included in those examples is the Constituent Major Index Id data item.

Understanding what Constituent Major Index Id represents is important, as well. The data definition for Constituent Major Index Id (INDEXID)states that it identifies the major index on which the index constituent is listed. The data item list tells you that the Constituent Major Index Id (INDEXID) data item is located in the S&P Index Constituent Descriptors (spidx_cst) data group. With all this information, you are prepared to retrieve the data that identifies the constituents of the S&P 500.

The key mnemonics for S&P Index Constituent Descriptors (spidx_cst) data group include Data Date (DATADATE). If you extract data from this data group by only specifying the data date, you

will retrieve all the index descriptor records for that date. From there, you can sort the records by the Constituent Major Index Id (INDEXID) data item. The records identifying the constituents of the S&P 500 will have an INDEXID value of 500 and will specify the Company Global Key (GVKEY) and Company Name (CONM) for each of the constituents.

Extracting Earnings per Share Data for the S&P 500

The data item list for your primary package subscription will tell you that the following earnings per share items are located in the Index Annual (idx_ann) data group.

- Earnings Per Share from Operations (OPEPS)
- Earnings Per Share – Diluted – from Operations (OPEPSX)
- Earnings Per Share – Excluding Extraordinary Items (EPSPX)
- Earnings Per Share (Basic) – Including Extraordinary Items (EPSPI)
- Earnings Per Share (Diluted) – Excluding Extraordinary Items (EPSFX)
- Earnings Per Share (Diluted) – Including Extraordinary Items (EPSFI)

The Index Annual data group contains annual index fundamental data. The index fundamental data is a calculated value. It is calculated by taking an item for each of the companies in a Major Index or an Industry Index, summing that value and dividing this number by the base divisor. All of the earnings per share item values and other index fundamental data items are pre-calculated values in the database, based upon the index fundamental data..

To extract the values for these earnings per share items for the S&P 500, you will need to retrieve all the data from the Index Annual (idx_ann) data group for a particular date, such as December 31, 2002. The data record you retrieved containing the S&P500's GVKEYX (000003) will also contain the values for these earnings per share items:

Table 28. Example of earnings per share data for an Index

Mnemonic	Data Item	Value
EPSFX	Earnings Per Share (Diluted) – Excluding Extraordinary Items	26.59248335022
EPSPI	Earnings Per Share (Basic) – Including Extraordinary Items	8.77064200948297
EPSPX	Earnings Per Share – Excluding Extraordinary Items	27.2365873886497
OPEPS	Earnings Per Share from Operations	44.7623944753992
OPEPSX	Earnings Per Share – Diluted – from Operations	44.0910350260176

Uses for Index Data

Index data has a wide range of potential uses, including:

- Relative Performance Analysis
- Industry Analysis
- Industry Comparisons
- Beta Analysis
- Technical Price Analysis
- S&P Industry Relatives

Relative Performance Analysis

Relative Performance Analysis involves the comparison of various company data with industry data for the industry in which the company is classified or with the total market as identified by the S&P Industrial Index or S&P 500 Index data. For example, relative price can be calculated by dividing the company price by the index price at the same point in time. Relative price, when observed over time, can be useful in projecting the company's future price performance compared to the market or compared to the company's industry.

The same type of analysis can be performed with earnings, price to earnings ratios, dividends, dividend yields, book values, returns on book value, and total investment returns (holding period returns). For instance, both the industry price and 12 months–moving earnings per share can be obtained from price, dividend and earnings data for any selected month and used to calculate the industry price to earnings ratio. This figure can then be divided into the calculated price to earnings ratio for the company for the same month. This company data is available via the various data files.

Industry Analysis

Xpressfeed price, dividend and earnings data includes index data that can be used independently of other data when you want to have a clear picture of specific industries' performances. For example, compound or least-squares growth rates of index data, such as earnings per share, price, dividends per share, annualized dividend rate, and book value per share can be calculated over varying periods to analyze the future direction and growth of an industry.

Industry Comparisons

The calculations performed with the industry data can be compared to the same calculations for other industries and for the market to determine past relative performances and project future performance. For example, various regression techniques could be used to compare monthly price variability of selected industries with each other or with the market.

Beta Analysis

The S&P Industrial Index and S&P 500 Index price, dividend and earnings data contained in Xpressfeed are exceptionally well-suited for the calculations necessary in beta analysis.

Technical Price Analysis

Xpressfeed's price, dividends and earnings data lends itself well to technical analysis of industry index data, as well as applying technical formulas to it.

S&P Industry Relatives

Virtually all items that can be calculated for an individual company can also be calculated on a relative basis. Using Xpressfeed price, dividends and earnings data, you can perform relative

analysis against the S&P 500, S&P Industrial, S&P Transportation, S&P Utilities, and S&P Financial indexes, as well as the New York Stock Exchange.

Financial Formulas for Index Data

Standard & Poor's has developed a number of pre-defined formulas and calculations for index data. These commonly used formulas are by no means all-inclusive; rather, they offer a starting point upon which you can expand.

The formulas and calculations included in this chapter pertain to index data. Many of the data items used in the financial formulas for index data are located in the:

- Company Quarterly/Interim Item (co_ifndq, co_ifndsa, co_ifndytd) data groups
- Security Daily Price (sec_dprc) data group*
- Index Daily (idx_daily) data group
- Index Quarterly (idx_qrt) data group

*Not available in Vendor subscriptions

Note: The formula will be presented in the right column using the mnemonics of Xpressfeed items.

Earnings per Share – 12-Months Moving

(Company Earnings per Share – 12 Months Moving/Industry Earnings per Share – 12 Months Moving) *** 100**	(EPSX12.co_ifndq/EPSX12.idx_qrt) *** 100**

Year End Close Price to Earnings

((Company Price – Close/Earnings per Share – 12 Months Moving)/(Industry Close Price/Earnings per Share – 12 Months Moving)) *** 100**	((PRCCD.sec_dprc/EPSX12.co_ifndq)/ (PRCCD.idx_daily/ EPSX12.idx_qrt)) *** 100**

Year End Price

(Company Price – Close/Industry Price – Close) *** 100**	(PRCCD.sec_dprc/ PRCCD.idx_daily) *** 100**

Year End Yield

((Company Annualized Dividend Rate/company Price – Close)/(Industry Annualized Dividend Rate/Industry Price – Close)) *** 100**	((DVRATE/ PRCCD.sec_dprc)(DVRATE/ PRCCD.idx_daily)) *** 100**

Notes:

Chapter 5
Currency Data

Currency data enables the translation of company and security data into common currency values for the most accurate and meaningful comparisons of data representing these high-level entities.

Currency Presentation for Canadian Companies

Standard & Poor's historically presented double-listed Canadian companies in both U.S. dollars (USD) and Canadian dollars (CAD), with fundamental data translated from the reported currency using the Federal Reserve month-end rate. Compustat Xpressfeed presents only one set of fundamental data for Canadian companies using the reported currency from the financial source. The default for all companies is native currency, but an exception applies if a Canadian company is only listed in Canada in which case it will be presented in CAD regardless of reported currency. Standard & Poor's recommends translating reported fundamental data into the currency of your choice using appropriate exchange rates provided in the Xpressfeed Exchange Rate data groups. When the company reports both USD and CAD, the fundamental data will be presented in CAD.

Retrieving Currency Data with Key Mnemonics

Each security data group has pre-defined key mnemonics. *Compustat Xpressfeed Technical Guide* contains the most current list of all Xpressfeed data groups and the key mnemonics defined for them. Examples of the security key data items in Xpressfeed primary packages include the following items that are listed by name, mnemonic and definition:

Table 29. Examples of security key data items

Key Data Item	Mnemonic	Definition
Data Date	DATADATE	This item indicates the time period to which each item applies. For example, the Data Date for a Company Annual item (co_afnd1) represents the fiscal period end date; for a Security Daily Price data item Data Date represents the trade date for the high, low, close and volume.

Key Data Item	Mnemonic	Definition
ISO Currency Code – Currency	ISOCURCD	These items are populated by ISO Currency Codes that represent countries and their currencies. For example, the Canadian Dollar is represented by CAD, the EURO is represented by EUR, the French Franc is represented by FRF, the German Deutsche Mark is represented by DEM, the Japanese Yen is represented by YPY, Pounds Sterling is represented by GBP, the Swiss Franc is represented by CHF, and the U.S. Dollar is represented by USD. TOCURD and TOCURM must be used in conjunction with From Currency Daily (FROMCURD) to determine the exchange rate between currency codes. FROMCURD is currently only available for use with British Pounds Sterling (GBP).
To Currency – Daily	TOCURD	
To Currency –Monthly	TOCURM	

Each key data item is represented by a key mnemonic. See *Compustat Xpressfeed Technical Guide* for a list of key mnemonics in each Compustat Xpressfeed package.

Examples of the currency key mnemonics in a primary package are as follows:

Table 30. Currency key mnemonics

Data Group	Data Group Description	Key Mnemonics:		
		Permanent Identifier	Primary Identifier	Secondary Identifier(s)
currency	Currency	ISOCURCD		
exrt_dly	Exchange Rate Daily	TOCURD	DATADATE	
exrt_mth	Exchange Rate Monthly	TOCURM	DATADATE	

Xpressfeed data is sorted into data groups according to a data infrastructure based on data classes. There are two currency data classes in Xpressfeed:

- General Currency
- Exchange Rate

In this chapter, we will show you how to retrieve each of these data classes using key mnemonics.

Extracting General Currency Data

To retrieve general currency data for a specific currency from the Currency (currency) data group, specify the currency's ISO Currency Code for the ISOCURCD data item. For example, to retrieve general currency data for Pounds Sterling, specify ISOCURCD = GBP. You will extract data that includes the following information:

Table 31. Examples of retrieved general currency data

Mnemonic	Data Item	Value
ISOCURBD	ISO Currency Birth Date	19000101
ISOCURDD	ISO Currency Death Date	--
ISOCURLNK	ISO Currency Link Code	169
ISOCURNM	ISO Currency Description	POUNDS STERLING
ISOCURTR	ISO Currency Tier Number	1

Extracting Exchange Rate Data

To retrieve exchange rate data for a specific currency on a specific date from the Exchange Rate Daily (exrt_dly) data group, specify the currency's ISO Currency Code for the TOCURD data item and the data date. For example, to retrieve exchange rate data for the EURO on December 31, 2002, specify TOCURD = EUR and DATADATE = 2002.

Table 32. Examples of retrieved general currency data

Mnemonic	Data Item	Value
EXRATD	Exchange Rate Daily	1.5339
EXRATTPD	Exchange Rate Type	AR
FROMCURD	From Currency Monthly	GBP

Translating Currencies

The reporting currency of a company can change over time for various reasons. For example, in the early to mid 1990s, Argentina, Brazil and Mexico revalued their currencies to deal with hyperinflation. Companies in these countries changed their reporting currency. Since the European Union (EU) established the European Economic & Monetary Union (EMU), creating a new currency, the Euro, many companies within member-states that adopted the Euro changed their reporting currency to the Euro. Furthermore, there are cases where a company may decide to change its reporting currency to one other than that of its country of incorporation, or the security data for one of its publicly traded issues may be in a different currency than the corresponding fundamental data.

Analysis of data involving multiple currencies requires the ability to have all underlying data on the same basis to make it most meaningful. Xpressfeed enables you to translate currencies, which creates common ground for analysis of a specific data item over time or a point-in-time ratio that involves multiple items.

convert to target currency vis primary currency

The Currency Translation Process

The currency translation process involves

1. identifying the reporting currency
2. determining the appropriate exchange rates
3. calculating the value of the data in the primary currency with the appropriate exchange rate between the primary currency and the reporting currency
4. converting the value of the data in the primary currency to the target currency with the appropriate exchange rate between the primary currency and the target currency

Step 1: Identifying the Reporting Currency

Reporting Currency is the currency that a company uses to report its financial data. Reporting currency is specific to company or security data. Identifying the reporting currency a company uses for a specific reporting period is the first step to translating company or security data. Xpressfeed defines all reporting currencies with ISO Currency Codes.

ISO Currency Codes (ISOCURCD) are 3-character abbreviations that represent the currency and its native country. They are not company or security data specific or reporting-period specific. ISO Currency Codes are defined in the Currency (currency) data group with the following data items:

- ISO Currency Code – Currency (ISOCURCD)
- ISO Currency Description (ISOCURNM)

Xpressfeed defines the reporting currencies for each company each reporting period with the following data items:

- ISO Currency Code – Annual (CURCD) from the Company Annual Descriptor (co_adesind) data group
- ISO Currency Code – Quarterly (CURCDQ) from the Company Quarterly Descriptor (co_idesind) data group

Xpressfeed defines the reporting currencies for each security's price and dividends each reporting period with the following data items:

- ISO Currency Code – Daily (CURCDD) from the Security Daily Price (sec_dprc) data group
- ISO Currency Code – Monthly (CURCDM) from the Security Monthly Item (sec_mthprc) data group
- ISO Currency Code – Dividend (CURCDDV) from the Security Dividend (sec_divid) data group
- ISO Currency Code – Dividend Monthly (CURCDDVM) from the Security Monthly Dividend (sec_mthdiv) data group

Step 2: Determining the Appropriate Exchange Rate

Determining the appropriate **Exchange Rate** to use is the second step to translating the data values you are analyzing. The exchange rate information delivered in the Exchange Rate (exrt_dly and exrt_mth) data groups includes the actual exchange rates and supplemental information that you will need to ensure accurate translation. The appropriate exchange rate depends upon the kind of data you are translating.

Table 33. The exchange rate to use with each kind of data

Data Item	Mnemonic	Data Group	Use with . . . .
Exchange Rate – Daily	EXRATD	exrt_dly	Balance Sheet data
Average Exchange Rate – 12 Months	EXRAT12M	exrt_mth	Income Statement & Cash Flow data
Exchange Rate – Daily	EXRATD	exrt_dly	Price data
Average Exchange Rate – 1 Month	EXRAT1M	exrt_mth	Price data
Average Exchange Rate – 12 Months Moving	EXRAT12M	exrt_mth	Dividend data

You can use the following supplemental items to identify the reporting period and determine the type of exchange rate to be applied:

Table 34. Items used to identify reporting period

Data Item	Mnemonic	Data Group	Used With
Data Date – Daily Exchange Rates	DATADATE	exrt_dly	EXRATD
Exchange Rate Type – Daily	EXRATTPD	exrt_dly	EXRATD
Data Date – Monthly Exchange Rates	DATADATE	exrt_mth	EXRAT1M and EXRAT12M

The reporting periods of the currency data are defined by the Date (DATADATE) data items. You must match the reporting period of the data you are analyzing to the reporting period of the currency data to accurately translate currencies.

The daily exchange rate information includes a description of the type of exchange rate Xpressfeed is delivering for the reporting period. That description is found in the Exchange Rate Type (EXRATTPD) data item. The daily exchange rate can be either an actual reported exchange rate or a value that has been carried forward when no actual figure is reported.

Step 3: Calculating the Value in the Primary Currency

Calculating the value of the data you are working with into the primary currency is the third step in the translation process. **Primary Currencies** are currencies that all currencies can directly translate into and can also be used as an intermediate step when translating currencies that cannot be directly translated to each other. Xpressfeed currently contains only one primary currency, Pounds Sterling (GBP).

Pounds Sterling is defined as the value for the following data items in the Exchange Rate (exrt_dly and exrt_mth) data groups:

Table 35. Exchange rates to use for translating into primary currency

Description	Mnemonic	Data Group	Used With
From Currency – Daily	FROMCURD	exrt_dly	EXRATD
From Currency – Monthly	FROMCURM	exrt_mth	EXRAT1M and EXRAT12M

Use this formula to translate a data item value from the reporting currency to the value in the primary currency:

Value in Reporting Currency **x (1 /** Appropriate Exchange Rate**) =** Value in Primary Currency

Note: The appropriate exchange rate is the exchange rate *FROM* the primary currency *TO* the reporting currency.

Once the data is translated into the Primary Currency, you can then convert the data into your intended target currency.

Step 4: Converting the Value to the Target Currency

The final step to translating currencies is converting the value of the data you are analyzing from the primary currency to your target currency. For each exchange rate value in Xpressfeed, there is a target currency defined for it. The target currencies are defined in the following data items from the Exchange Rate (exrt_dly and exrt_mth) data groups:

Table 36. Exchange rates to use for translating into target currency

Description	Mnemonic	Data Group	Used With
To Currency – Daily	TOCURD	exrt_dly	EXRATD
To Currency – Monthly	TOCURM	exrt_mth	EXRAT1M and EXRAT12M

Use this formula to convert the value of a data item in the primary currency to the value in your intended target currency:

Value in Primary Currency **x** Appropriate Exchange **=** Value in Target Currency

Note: The appropriate exchange rate is the exchange rate *FROM* the primary currency *TO* the target currency.

For example, a money manager in Hong Kong wants to convert a Malaysian company's Net Income (NI) figure from Malaysian Ringgit (MYR) into Hong Kong Dollars (HKD).

The first step would be to convert the NI figure *from* MYR (the reporting currency) *to* Pounds Sterling (GBP) (the primary currency).

MYR GBP
64.753 **x (1/** 5.495**) =** 11,783
EXRAT12M

The second step would be to convert the NI figure from GBP to HKD.

GBP HKD
11,783 **x (**11.2767**) =** 132,873
EXRAT12M

The Process at a Glance

Below is a quick reference table for the entire process of translating an Xpressfeed data value from one currency to another.

Types of Data	Reporting Currency Mnemonic	Exchange Rate Mnemonic	Primary Currency Mnemonic	Target Currency Mnemonic	Complete Formula to apply to the Data Value
Company Data	--	--	--	--	--
Annual	CURCD	--	--	--	--
Balance Sheet	--	EXRATD	FROMCURD	TOCURD	[CURCD * (1/ EXRATD for FROMCURD to CURCD)] * EXRATD for FROMCURD to TOCURD
Income Statement and Cash Flow	--	EXRAT12M	FROMCURM	TOCURM	[CURCD * (1/ EXRAT12M for FROMCURM to CURCD] * EXRAT12M for FROMCURM to TOCURM
Quarterly	CURCDQ	--	--	--	--
Balance Sheet	--	EXRATD	FROMCURD	TOCURD	[CURCDQ * (1/ EXRATD for FROMCURD to CURCDQ)] * EXRATD for FROMCURD to TOCURD
Income Statement and Cash Flow	--	EXRAT12M	FROMCURM	TOCURM	[CURCDQ * (1/ EXRAT12M for FROMCURM to CURCDQ)] * EXRAT12M for FROMCURM to TOCURM

Types of Data	Reporting Currency Mnemonic	Exchange Rate Mnemonic	Primary Currency Mnemonic	Target Currency Mnemonic	Translation Formula to apply to the Data Value
Security Data	--	--	--	--	--
Prices	--	--	--	--	--
Daily	CURCDD	EXRATD	FROMCURD	TOCURD	[CURCDD * (1/ EXRATD for FROMCURD to CURCDD)] * EXRATD for FROMCURD to TOCURD
Monthly	CURCDDM	EXRAT1M	FROMCURM	TOCURM	[CURCDDM * (1/ EXRAT1M for FROMCURD to CURCDDM) * EXRAT1M for FROMCURD to TOCURD
Dividends	--	--	--	--	--
Daily	CURCDDV	EXRATD	FROMCURD	TOCURD	[CURCDDV * (1/ EXRATD for FROMCURD to CURCDDV)] * EXRATD for FROMCURD to TOCURD
Monthly	CURCDDVM	EXRAT12M	FROMCURM	TOCURM	[CURCDDVM * (1/ EXRAT12M for FROMCURD to CURCDDVM)] * EXRAT12M for FROMCURD to TOCURD

The Process in Action

The following examples demonstrate the tools Compustat Xpressfeed delivers t to perform currency translations.

Translating the Currency of Company Data

Acea SPA (GVKEY 233257), which reports Company data in Italian Lira (ITL), reported an annual Sales/Turnover – Net (SALE) figure for 1999 (DATADATE 19991231) of £1,186,741. That figure, however, needs to be translated into U.S. Dollars (USD) in order for a meaningful comparison to the annual Sales/Turnover – Net (SALE) figure with another company that either reports in USD or has been translated into USD as a common currency.

As previously stated, Pounds Sterling (GBP) is the primary currency in Xpressfeed because it can be directly translated into all other currencies in Xpressfeed and can be used as the bridge between two currencies that are not directly translatable into each other. In this example, Average Exchange Rate – 12 Months (EXRAT12M) is the appropriate exchange rate to use because SALE is Income Statement and/or Cash Flow information about the company. EXRAT12M for GBP to ITL on December 31, 1999, (19991231) in Xpressfeed as 2940.54162628 and for GBP to USD as 1.61809708 for the same reporting period.

By multiplying the SALE figure in ITL by the quotient of 1/ the GBP to ITL exchange rate, the SALE figure can be translated from ITL to GBP:

1,186,741 x (1/2940.54162628) = 403.579046789

The intermediary SALE figure is **403.579046789** GBP. Next, multiply the SALE figure in GBP by the GBP to USD exchange rate, to translate the SALE figure from GBP to USD:

403.579046789 x 1.61809708 = 653.030077159

The final SALE figure in USD is **653.030077159**, which can be rounded to **653.03**. Now that figure can be directly compared to the SALE figure in USD of another company or grouped with other items also translated to USD for a more comprehensive comparison to the other company or companies.

Translating the Currency of Security Data

If a more comprehensive analysis of Acea SPA is needed, it becomes necessary to include data from all of the company's issues. Data for the first issue of the company (Issue ID 01W) is reported in Euros (EUR). Therefore, translation of the market data's currency from Euros to GBP to USD is in order.

Price – Close – Daily (PRCDD) on February 28, 2001 (20010228) is 11.00 Euros. The periodicity for PRCCD is daily and requires the use of the Exchange Rate – Daily (EXRATD) exchange rate for currency translation. EXRATD for GBP to EUR on February 28, 2001, as 1.5684 and for GBP to USD as 1.4423 for the same day.

By multiplying the PRCCD figure in EUR by the quotient of 1/ the GBP to EUR exchange rate, the PRCCD figure can be translated from EUR to GBP:

11.00 x (1/1.5684) = 7.0135169599

The intermediary PRCCD figure is **7.0135169599** GBP. Next, multiply the PRCCD figure in GBP by the GBP to USD exchange rate, to translate the PRCCD figure from GBP to USD:

7.0135169599 x 1.4423 = 10.1155955112

The final PRCCD figure in USD **is 10.1155955112**, which can be rounded to **10.12**. That figure can be included in your comprehensive analysis of Acea SPA.

Chapter 6
Economic Indicator Data

Economic data helps to paint an accurate picture of the overall status of a country's economy.

Retrieving Economic Indicator Data with Key Mnemonics

Each economic indicator data group has pre-defined key mnemonics. *Compustat Xpressfeed Technical Guide* contains the most current list of all Xpressfeed data groups and the key mnemonics defined for them. Examples of the economic indicator key data items in Xpressfeed primary packages include the following items that are listed by name, mnemonic and definition:

Table 37. Examples of economic indicator key data items

Key Data Item	Mnemonic	Definition
DATADATE	Data Date	This item indicates the time period to which each item applies. For example, the Data Date for a Company Annual item (co_afnd1) represents the fiscal period end date; for a Security Daily Price data item Data Date represents the trade date for the high, low, close and volume.
ECONISO	ISO Country Code – Economic Level	This item indicates the ISO country code for which the economic data exists (currently available for U.S. data only). For example, the U.S. is represented by USA.
ECONIND	Economic Indicator	This item refers to data that serves as a monitor of the economic growth and health of a country and can have a significant impact on a country's market.

Each key data item is represented by a key mnemonic. See *Compustat Xpressfeed Technical Guide* for a list of key mnemonics in each Compustat Xpressfeed package.

Examples of the key mnemonics in each data group in a primary package are as follows:

Table 38. Key economic indicator mnemonics in the data groups

Data Group	Data Group Description	Key Mnemonics:		
		Permanent Identifier	Primary Identifier	Secondary Identifier(s)
ecind_mth	Economic Indicator Monthly	ECONISO	DATADATE	

Data Group	Data Group Description	Key Mnemonics:		
		Permanent Identifier	Primary Identifier	Secondary Identifier(s)
ecind_desc	Economic Indicator Descriptor	ECONISO	ECONIND	

Xpressfeed data is sorted into data groups according to a data infrastructure based on data classes. The Economic Indicator data class is only economic indicator data class in Xpressfeed. In this chapter, we will show you how to retrieve this class of data using key mnemonics.

To retrieve economic indicator data for a specific country, on a specific date from the Economic Indicator Monthly (ecind_mth) data group, specify the country's ISO Country Code for the ECONISO and DATADATE data items. For example, to retrieve economic indicator data for the U.S. on December 31, 2002, specify ECONOISO = USA and DATADATE = 20021231. You will extract data that includes the following information:

Table 39. Examples of retrieved economic indicator data

Mnemonic	Data Item	Value
BOND20YR	Government Bonds – 20 Year	4.83
CPI	Consumer Price Index – All Urban – All Items	1.816
EMPLOY	Employment – Nonfarm	130.67
FEDFUNDS	Federal Funds Rate	1.16
GDP	Gross Domestic Product	9518.2
NOTE10YR	Government Notes – 10 Year	3.83
NOTE2YR	Government Notes – 2 Year	1.61
NOTE3YR	Government Notes – 3 Year	1.99
NOTE5YR	Government Notes – 5 Year	2.78
NOTE7YR	Government Notes – 7 Year	3.36
PPI	Producer Price Index – Finished Goods – All Items	1.393
PRIME	Prime Interest Rate	4.25
RTLSALES	Retail Sales – Total	275.943
TBILL3M	Treasury Bill – 3 – Month	1.2
TBILL6M	Treasury Bill – 6 – Month	1.21
UNEMP	Unemployment Rate	6
CABGDP1	Current Account Balance, % of GDP	-4.3901
CABGDP2	Current Account Balance, % of GDP, SA	-4.6591
CPI1	Consumer Price Index	104.4572
CPI3	Consumer Price Index, SA	105.766
CPIR	Inflation Rarte: Consumer Price Index, Year-on-Year	1.5957
EMPLOYT1	Employment: Total	136.7321
EMPLOYT2	Employment: Total, SA	136.9908
GDPN1	Nominal Gross Domestic Product	10469.6
GDPN2	Nominal Gross Domestic Product, SAAR	10591.1
GDPR1	Real Gross Domestic Product Chain-weighted basis	10048.85

Mnemonic	Data Item	Value
GDPR2	Real Gross Domestic Product, SAAR Chain-weighted basis	10095.8
IP1	Industrial Production	96.5266
IP3	Industrial Production, SA	96.957
IPGR	Growth Rate: Industrial Production, Year-on-Year	0.0319
LTGDR	GOVERNMENT ISSUE: BENCHMARK, 10-YEAR – YIELD	4.0281
MBROAD1	Broad Money Supply, Period End	5745.8
MBROAD3	Broad Money Supply, Period End, SA	5780.207
POPT	Population: Total	288.8109
STGDR	TREASURY BILL: BENCHMARK, 3-MONTH – YIELD	1.211
TXCR	Tax Rate: Corporate Income Taxes	13.9403
UNEMP1	Unemployment Rate	5.7835
UNEMP2	Unemployment Rate, SA	5.8667
WPI1	Wholesale/Producer Price Index	98.7565
WPI3	Wholesale/Producer Price Index, SA	100.925
WPIR	Inflation Rate: Wholesale/Producer Price Index, Year-on-Year	-2.3047

Notes:

Chapter 7
Reference Data

Reference data provides the details for the data items in many data classes in Xpressfeed. Check your item list for reference table availability in your package.

Retrieving Reference Data with Key Mnemonics

Each reference group has pre-defined key mnemonics. The most current list of all Xpressfeed reference groups and the key mnemonics defined for them can be found in the *Compustat Xpressfeed Technical Guide* manual. In general, the code reference item of each reference group is the permanent key. A few reference groups employ the description reference item or another reference item as the primary key.

Each key data item is represented by a key mnemonic. Examples of the key mnemonics in each reference group in a primary package are:

Table 40. Key mnemonics in the reference data groups

Data Group	Data Group Description	Permanent Identifier	Primary Identifier
r_accstd	Accounting Standards Reference Data	ACCTSTDCD	
r_acqmeth	Acquisition Methods Reference Data	ACQMETHCD	
r_auditors	Auditors Reference Data	AUCD	
r_auopic	Auditor Opinion Reference Data	AUOPICCD	
r_balpres	Balance Sheet Presentations Reference Data	BSPRCD	
r_cf_formt	Cash Flow Formats Reference Data	SCFCD	
r_coindpres	Company Industry Presentation Reference Data	IPCDCD	
r_compstat	Comparability Stats Reference Data	COMPSTCD	
r_consol	Level of Consolidation Reference Data	CONSOLCD	
r_country	Country Reference Data	ISOCNTRYCD	
r_cstclscd	Index Constituent Classification Codes Reference Data	CONTYPECD	CONVALCD
r_datacode	Data Codes Reference Data	DATACDCD	
r_datafmt	Data Format Reference Data	DATAFMTCD	

Data Group	Data Group Description	Permanent Identifier	Primary Identifier
r_docsrce	Annual Source Document Codes Reference Data	SRCCD	
r_ex_codes	Exchange Trading Sys Codes Reference Data	EXCHGCD	
r_exrt_typ	Exchange Rate Types Reference Data	EXRATTPDCD	
r_footnts	Footnote Codes	FNCD	
r_fndfntcd	Fundamental Footnote Codes Reference Data	FNCD	POPSRC
r_foricd	Fortune Industry Code Reference Data	FORICD	
r_giccd	Global Industry Classification Standard Code Reference Data	GICCD	
r_hcalendr	Market Holiday Calendar	ISOCD	DATADATE
r_idxclscd	Index Classification Reference Data	IDXTYPECD	IDXVALCD
r_inactvcd	Inactivation Code Reference Data	DLRSNCD	
r_incstats	Income Statement Models Reference Data	ISMODCD	
r_indsec	S&P Industry Sector Codes Reference Data	SPINDCD	
r_indfmt	Industry Format Reference Data	INDFMTCD	
r_invval	Inventory Valuations Reference Data	INVVALCD	
r_issuetyp	Issue Types Reference Data	TPCICD	
r_majidxcl	Major Index Classification Reference Data	IDXIDCD	IDXCAT
r_naiccd	NAICS Code Reference Data	NAICSCD	
r_notetype	Reference Data for Note Types	NOTETYPECD	
r_ntsubtype	Reference Data for Note Subtypes	NOTETYPECD	
r_offcrso	Officer SOX Certification Reference Data	OSOCD	
r_ogmethod	Oil & Gas Method Reference Data	OGMCD	
r_opinions	Opinions Reference Data	AUOPCD	
r_prc_stat	Price Status Codes Reference Data	PRCSTDCD	
r_qsrcdoc	Qtr Source Document Code Reference Data	SRCQCD	
r_sec_stat	Security Status Codes	ISALRTCD	
r_secannfn	Security Financial Annual Footnote	SECFNCD	
r_sectors	S&P Sector Codes Reference Data	SPSECCD	
r_siccd	SIC Code Reference Data	SICCD	
r_spiicd	S&P Industry Index Code Reference Data	SPIICD	
r_spmicd	S&P Major Industry Codes Reference Data	SPMICD	
r_statalrt	Status Alerts Reference Data	STALTCD	
r_states	States Reference Data	STATECD	
r_stko	Stock Ownership Reference Data	STKOCD	
r_titles	Title Codes Reference Data	OFCDCD	
r_updates	Update Codes Reference Data	UPDCD	

For example, the Auditor (AU) data item in the Company Auditor (co_aaudit) data group (which is company descriptor data) indicates that Brown-Forman -CL (GVKEY 002410) has had the same Auditor (4) since December 1982:

Table 41. Example of consistent auditor data

DATADATE	AU
19821231	4
19831231	4
19841231	4
19851231	4
19861231	4
19871231	4
19881231	4
19891231	4
19901231	4
19911231	4
19921231	4

DATADATE	AU
19931231	4
19941231	4
19951231	4
19961231	4
19971231	4
19981231	4
19991231	4
20001231	4
20011231	4
20021231	4

To identify the name of Brown-Forman -CL auditor, you can generate a list of the codes and descriptions valid for the Auditor Code (AUCD) and Auditor Description (AUDESC) reference items within the Auditors reference group (r_auditors). The records in r_auditors reference group are:

Table 42. Auditor code and auditor descriptions reference items

AUCD	AUDESC
0	Unaudited
1	Arthur Andersen
2	Arthur Young
3	Coopers & Lybrand
4	Ernst & Young
5	Deloitte & Touche
6	KPMG Peat Marwick
7	PricewaterhouseCoopers
8	Touche Ross
9	Other
10	Altschuler, Melvoin, and Glasser
11	BDO Seidman
12	Baird, Kurtz, and Dobson
13	Cherry, Bekaert, and Holland

AUCD	AUDESC
14	Clarkson, Gordon
15	Clifton Gunderson
16	Crowe Chizek
17	Grant Thornton
18	J H Cohn
19	Kenneth Leventhal
20	Laventhol & Horwath
21	McGladrey & Pullen
22	Moore Stephens
23	Moss Adams
24	Pannell Kerr Foster
25	Plante & Moran
26	Richard A. Eisner
27	Spicer & Oppenheim

As you can see from the reference codes and descriptions, Ernst & Young (4) is Brown-Forman -CL’s auditorhapter

Notes:

Chapter 8
Other Usage

Identifying Non-Trading U.S. Companies and Securities

Standard & Poor's collects fundamental data for non-trading companies so you can augment your fundamental analysis and industry comparisons with comparable non-trading companies. We also provide market data for non-trading securities of public companies.

In Compustat Xpressfeed, each non-trading company and security has its own unique record. The non-trading records in Xpressfeed represent public companies', as well as pre-SFAS 94, Pro Forma, Red Herring, and subsidiary companies' non-trading issues.

Type of non-trading record	Data in the corresponding company records
Non-Trading Issues	Market data for non-trading securities of trading companies.
Pre-Amendment	Pre-restatement fundamental data of a company that restates one or more years of financial data and is under investigation by the SEC.
Pre-SFAS 94	Annual and quarterly fundamental data of a company prior to October 1987, which is when the FASB began requiring companies to consolidate the reporting of all majority-owned subsidiaries
Pro Forma	Annual and quarterly fundamental data from company financial statements that represent the anticipated accounting survivor of a not-yet fully completed merger or acquisition
Red Herring	Fundamental data from the preliminary registration statement, which describes the initial public offering (IPO) and financial prospects of a company that is not yet listed on an exchange
Subsidiary	Fundamental data for wholly-owned subsidiaries of public and privately-held parent companies

All non-trading records in Xpressfeed will have temporary CUSIP numbers in the Security (security) data group's CUSIP Number (CUSIP) data item.

Temporary CUSIP Numbers Created by Standard & Poor's

The CUSIP Service Bureau assigns unique CUSIP numbers to corporate and municipal issuers and their issues of financial instruments. Issuers must request a CUSIP number and fulfill substantial documentation requirements in order for a permanent CUSIP to be issued. Xpressfeed and other financial databases commonly use the permanent CUSIP numbers as the primary identifiers for securities.

CUSIP numbers are 9-digit codes. The first 6 digits identify the issuer, the 7th and 8th digits identify the issue, and the 9th digit is the check digit. (The 6-digit issuer component is derived from the corresponding alphabetic sequence of issuer names that has been a part of the CUSIP numbering system since its inception in 1967.) If a CUSIP number contains alpha characters, the first alpha character identifies the issuer's country or region of origin and an X in the last digit of the code indicates that the issue is inactive. For more information about permanent CUSIP numbers, visit **http://www.cusip.com**.

Standard & Poor's creates a temporary CUSIP number to represent non-traded companies within Xpressfeed. The creation of temporary CUSIP numbers allows company records for non-traded companies to be established in Xpressfeed. Temporary CUSIP numbers function as the primary identifier of non-trading companies.

The temporary CUSIP numbers also have 9 digits and are comprised of the following:

If the record. . .	Digits 1 – 3	Digits 4 – 6	Digits 7 – 9
• Cannot use an existing CUSIP number from another issue of the company AND/OR • Represents a Pre-SFAS 94, Pro Forma, or Red Herring company	The first three digits correspond to where in the CUSIP order the company name would fall alphabetically in the sequence of issuer names	99X, 99Y or 99Z	93, 94, 95 or 96 plus the check digit
Represents a Pre-Amendment company	The first three digits correspond to where in the CUSIP order the company name would fall alphabetically in the sequence of issuer names	98A, 98M, 98E, 99A, 99M or 99E	93, 94 or 95 plus the check digit
• Can use an existing CUSIP number from another issue of the company AND/OR • Represents a non-trading security of a public company	The 6-digit issuer component of the existing CUSIP number.		93 plus the check digit
Represents a subsidiary company	The 6-digit issuer component of the existing CUSIP number.		00 plus the check digit

Other Ways of Identifying Non-Trading Records

If a temporary CUSIP number does not indicate the type of non-trading record, you can also use one or more of the following data items to do so:

- Company Name (CONM) in the Company data group (company)
- Stock Exchange (EXCHG) in the Security data group (security)
- Ticker/Trading Symbol (TIC) in the Security data group (security)

Not all of these data items provide specific information. Use the following chart to determine which data item(s) you should use in conjunction with the CUSIP Number (CUSIP) to determine the type of non-trading record.

	CUSIP Number (CUSIP)	Company Name (CONM)	Stock Exchange (EXCHG)	Ticker/Trading Symbol (TIC)
Subsidiary	X		X	
Non-Trading Issues	X		X	
Pre-Amendment	X	X		X
Pre-SFAS 94	X	X		X
Pro Forma	X	X		X
Red Herring	X	X		

Notations in the Company Name

Notations in the Company Name (CONM) data item in the Company data group (company) can indicate which type of non-trading company a record represents. Company records for Red Herring companies can display **-REDH** at the end of the company name and company records for Pro Forma companies may display **-PROFORMA** at the end of the company name. Company records for Pre-Amendment companies will display **-PRE AMEND** at the end of the company name. For example,

- EMPI INC-REDH (GVKEY: 004329)
- OPEN SOLUTIONS INC-REDH (GVKEY: 113225)
- GEORGIA-PACIFIC GRP PROFORMA (GVKEY: 139001)
- AOL TIME WARNER INC-PROFORMA (GVKEY: 142022)
- TIME WARNER INC -PRE AMEND (GVKEY: 156335)
- IMCLONE SYSTEMS INC-PREAMEND (GVKEY: 156575)

Stock Exchange Codes

The Stock Exchange (EXCHG) data item's code represents the type of non-trading company record. Exchange codes that pertain to non-trading company records are as follows:

Exchange Code	Description
0	Subsidiary company
1	Non-trading security of a public company
4	Pre-Amendment, Pre-SFAS 94, or Pro Forma company

Pseudo-Tickers/Trading Symbols

Standard & Poor's often assigns pseudo-tickers to non-trading companies and securities. The pseudo-ticker in the Ticker/Trading Symbol (TIC) data item can help you to identify the type of non-trading record. The conventions used for non-trading pseudo-tickers are:

Type of non-trading record	Pseudo-Ticker convention
Non-Trading Issues	Four digits followed by a B. For example, 1015B, 1064B, etc.
Pre-Amendment	Ticker plus the suffix ".am"
Pre-SFAS 94	Ticker plus the suffix ".F"
Pro Forma	Most often, the ticker plus the suffix ".P" Can also be the ticker plus the suffix ".O", ".R", or ".X", as well as four digits followed by a B
Red Herring	Four digits followed by a B. For example, 1015B, 1064B, etc.
Wholly-owned subsidiaries of publicly traded companies	Pn, where P is the parent company's ticker symbol and n is a unique number identifying a particular subsidiary of that parent
Subsidiaries of companies that do not have any publicly traded Common/Ordinary Stock (Capital)	Four digits followed by an A. For example, 1020A, 1059A, etc.

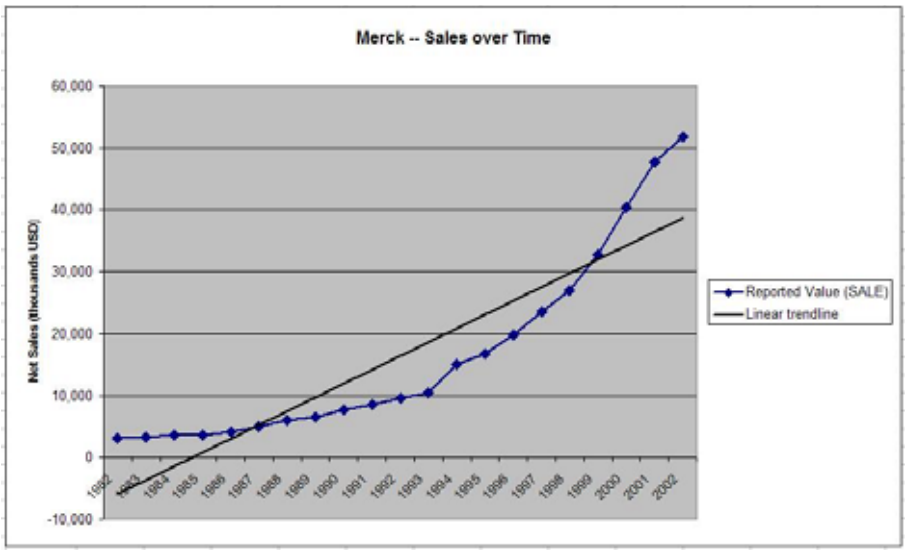
Calculating Company Sales Growth Over a Period of Time and the Stability of That Growth

When analyzing a company's historical financial performance, you may wonder how fast and how stable the company's sales growth is over time. Calculating the Least-Squares Growth Rate of a time-series of data and the Coefficient of Determination (which measures the stability of that growth) can answer those questions for you.

Below is the annual Net Sales for Merck & Co. (GVKEY 007257) for the last 21 years.

	A	B	C	D	E	F	G	H	I	J
1	MERCK & CO									
2										
3		Net Sales								
4	YEAR	SALE								
5	1982	3063.016		Source:						
6	1983	3246.136								
7	1984	3559.664		Standard & Poors (S&P) COMPUSTAT database delivered via Xpressfeed,						
8	1985	3547.499		Company Annual Fundamental information (co_annfund datagroup),						
9	1986	4128.898		"Sales (Net)" (item SALE). Data as of 9/13/2003.						
10	1987	5061.300								
11	1988	5939.500								
12	1989	6550.500								
13	1990	7671.500								
14	1991	8602.700								
15	1992	9662.500								
16	1993	10498.200								
17	1994	14969.800								
18	1995	16681.100								
19	1996	19828.700								
20	1997	23636.900								
21	1998	26898.200								
22	1999	32714.000								
23	2000	40363.200								
24	2001	47715.700								
25	2002	51790.300								

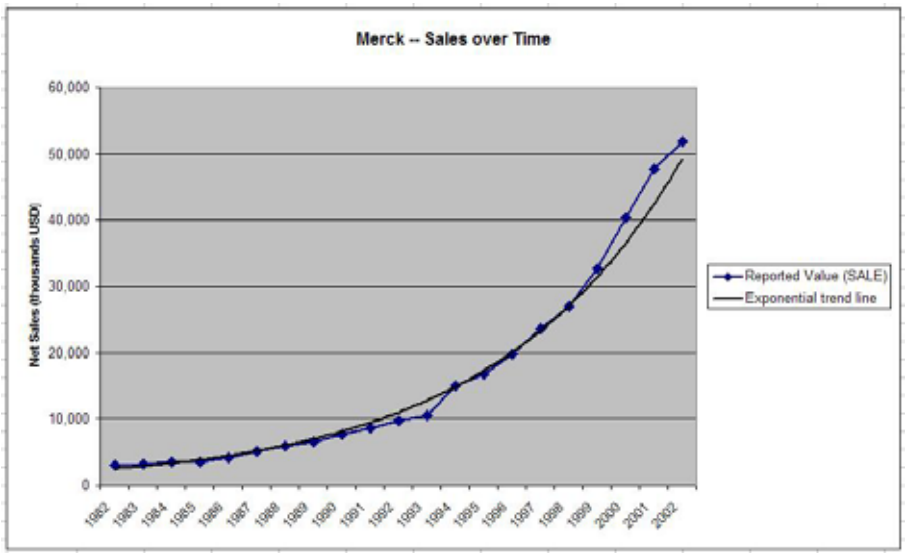
As you can see, sales are growing rapidly from year to year. However, to determine how quickly they have been growing, the first instinct may be to plot the sales over time along with the linear trend line that best fits these data points.



Notice that the linear trend line does not fit the data. That is because a linear trend line assumes that the data values have been growing arithmetically, i.e. increasing by a constant dollar amount each year. The reality is that Merck's sales have been growing exponentially, i.e. multiplying by a constant factor each year.

If you look at the numbers, again, it shows that sales are greater than the previous year by a factor of approximately 1.15. That means the growth multiplier is 1.15 and the *growth rate* is 0.15 (1.15 – 1), or 15%. Therefore, Merck's sales are growing at approximately 15% per year.

Exponential growth (situations where a value is increasing by a constant percentage from year to year) is seen frequently in financial analysis. The exponential shape of Merck's curve is particularly apparent because the growth rate of Merck's is high. When the exponential trend line is plotted, you can see that the trend line fits the data.



To determine the exact rate of growth of Merck's sales, you must calculate Least-Squares Growth Rate and the Coefficient of Determination.

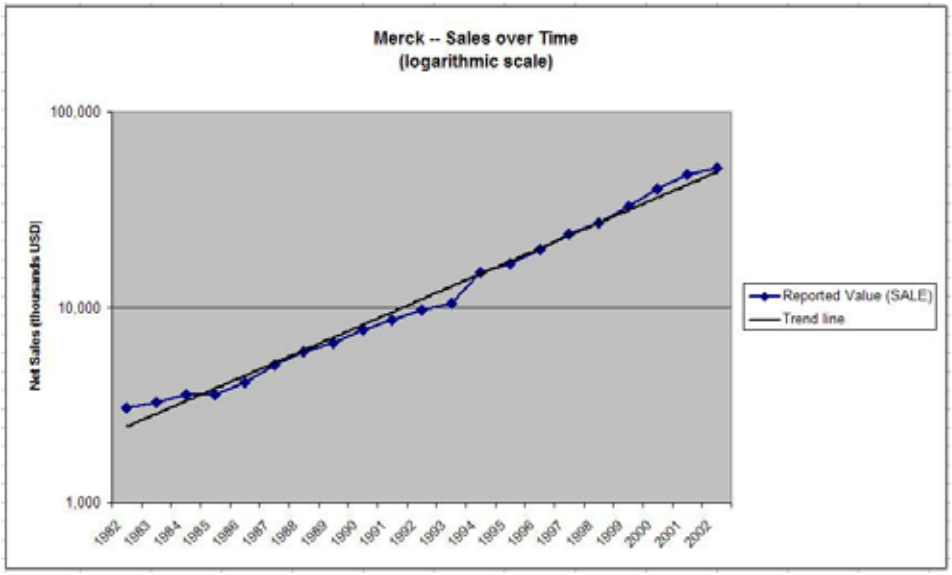
The least-squares growth method is a commonly used growth indicator and is one of several methods for measuring growth. It involves calculating the location of the start of the exponential trend line and its rate of growth (a.k.a. *Least-Squares Growth Rate*). The advantages of the least-squares growth method include:

- It is an average rate that is representative of the available observations over the entire period and it does not necessarily match the actual growth rate between any two periods.
- It takes into account each of the observations under consideration, unlike *geometric* (or *compound*) growth rates, which only consider the first and last observations.
- It measures the stability of observed growth.
- It dampens the influence of exceptional values, particularly at the end points.
- Unlike the arithmetic average of annual growth rates, it takes into account the sequence of different growth rates over time.

The disadvantage of the least-squares growth method is that it is very sensitive to extreme (or outlying) values, which can distort the result significantly. Therefore, extreme values should be excluded.

The calculation of the Least Squares Growth Rate and the Coefficient of Determination is detailed but straightforward, and the results are well worth the effort. Approach the calculation as follows.

The arithmetic trend line cannot be plotted through the data values because they are increasing exponentially and do not lay on a straight line. However, if these same values are plotted on a logarithmic scale, they will lay on a straight line. Therefore, you can compute the arithmetic trend line for these "transformed" values and then use information about the arithmetic trend line to determine the growth rate of the original data values.



Estimate the least-squares growth rate (R) by fitting a linear regression trend line to the logarithmic data values over time. The regression equation takes the form ln(X(t)) = a + bt, which is equivalent to the logarithmic transformation of the compound growth equation X(t) = X(0) * (1 + R)^t.

Parameter b is the slope of the linear trend line, and parameter a is the Y-intercept of the linear trend line. From parameter a, you can compute the location of the start of the exponential trend line for the original data values. From parameter b, you can compute the least-squares growth rate of the exponential trend line for the original data values. From the linear regression we can also compute the "goodness of fit" (i.e. Coefficient of Determination) between the linear trend line and the logarithmic data values.

In this equation, X is the variable, t is time, and a = ln(X(0)) and b = ln(1 + R) are the parameters to be estimated using linear regression. If b* is the least-squares estimate of b, the average growth multiplier is exp(b*), and the average growth rate R is exp(b*) – 1, or (exp(b*) – 1) * 100 when expressed as a percentage.

Note: The following pertain to the calculation:

- x^y means x raised to the power y
- ln(x) denotes the natural logarithm of x
- exp(x) denotes the natural anti-logarithm of x (i.e. the constant e raised to the power x)

Least-Squares Growth Rate

Below is an illustration of the calculation of the Least Squares Growth Rate.

	A	B	C	D	E	F	G
1	MERCK & CO						
2							
3		Net Sales	Time	ln(SALE)			
4	YEAR	SALE	X	Y	X - avg(X)	(X - avg(X)) * Y	(X - avg(X)) ^ 2
5	1982	3063.016	0	8.027	-10.000	-80.272	100.000
6	1983	3246.136	1	8.085	-9.000	-72.767	81.000
7	1984	3559.664	2	8.177	-8.000	-65.419	64.000
8	1985	3547.499	3	8.174	-7.000	-57.218	49.000
9	1986	4128.898	4	8.326	-6.000	-49.955	36.000
10	1987	5061.300	5	8.529	-5.000	-42.647	25.000
11	1988	5939.500	6	8.689	-4.000	-34.758	16.000
12	1989	6550.500	7	8.787	-3.000	-26.362	9.000
13	1990	7671.500	8	8.945	-2.000	-17.891	4.000
14	1991	8602.700	9	9.060	-1.000	-9.060	1.000
15	1992	9662.500	10	9.176	0.000	0.000	0.000
16	1993	10498.200	11	9.259	1.000	9.259	1.000
17	1994	14969.800	12	9.614	2.000	19.228	4.000
18	1995	16681.100	13	9.722	3.000	29.166	9.000
19	1996	19828.700	14	9.895	4.000	39.580	16.000
20	1997	23636.900	15	10.071	5.000	50.353	25.000
21	1998	26898.200	16	10.200	6.000	61.199	36.000
22	1999	32714.000	17	10.396	7.000	72.769	49.000
23	2000	40363.200	18	10.606	8.000	84.845	64.000
24	2001	47715.700	19	10.773	9.000	96.957	81.000
25	2002	51790.300	20	10.855	10.000	108.550	100.000
26						115.558	770.000
27							
28	Slope of Y		m =	0.150075	sum((X - avg(X)) * Y) / sum((X - avg(X)) ^ 2)		
29		check	m =	0.150075	=index(linest(D5:D25,C5:C25),1)		
30							
31	Intercept of Y		b =	7.802392	avg(Y) - m * avg(X)		
32		check	b =	7.802392	=index(linest(D5:D25,C5:C25),2)		
33							
34	**Growth Rate**		**R =**	**0.161921**	exp(m) - 1		
35			**R =**	**16.2%**	**growth per year**		

Column B contains the data values whose growth rate is to be determined. This example uses Net Sales, but the growth rate of any data value (such as Net Income, EPS, Cash Flow, etc) can be computed.

Column C introduces the X variable, which represents time. The example uses 0, 1, 2 … but the YEAR could have been used instead, or any set of evenly-spaced values (since the YEARs are evenly-spaced).

Column D introduces the Y variable by transforming the SALE data values into their logarithmic equivalents.

If you now perform a simple linear regression of the variables X and Y, using the "method of least-squares", the resulting regression trend line will be the line that best fits the series of (X, Y) data points.

Column E computes X – avg(X). avg(X), which means the average of the 21 X values.

Column F computes (X – avg(X)) * Y.

Column G computes (X – avg(X)) ^ 2.

The slope of the regression trend line (m) is determined by dividing the sum of column F by the sum of column G. You can verify that the result is correct by using Microsoft Excel's built-in function LINEST, which performs the same linear regression and returns the slope.

The intercept of the regression trend line (b) is determined by taking the average of the Y values and subtracting the slope times the average of the X values. You can verify the result is correct by using Excel's built-in function LINEST, which performs the same linear regression and returns the intercept.

Finally, the slope of the regression trend line can be used to determine the exponential growth rate of the original SALE data values. The Least-Squares Growth Rate is 0.161921. Merck's sales have been growing, on average, 16.2% per year.

Calculation: Coefficient of Determination

Coefficient of Determination (R2) measures the "goodness of fit" between the regression trend line and the logarithmic data values. Equivalently, R2 measures the "goodness of fit" between the exponential trend line and the original data values. R2 is the percent of the variation that can be explained by the regression equation. It is calculated by dividing the "Explained Variation" by the "Total Variation". R2 ranges from 0.0 to 1.0. An R2 of 1.0 indicates a perfect fit, i.e. all of the data values fall on the exponential trend line. An R2 of 0.0 indicates no fit at all, i.e. the data values are all scattered and do not tend to cluster on the exponential trend line.

Now that you know the slope and intercept of the regression trend line, we can continue the process to calculate the Coefficient of Determination (R2).

A	B	C	D	H	I	J	K	L	M
MERCK & CO									
	Net Sales	Time	ln(SALE)	PY			PSALE		
YEAR	SALE	X	Y	m * X + b	(PY - avg(Y)) ^ 2	(Y - avg(Y)) ^ 2	exp(PY)		
1982	3063.016	0	8.027	7.802	2.252	1.628	2446.446		
1983	3246.136	1	8.085	7.952	1.824	1.483	2842.578		
1984	3559.664	2	8.177	8.103	1.441	1.267	3302.852		
1985	3547.499	3	8.174	8.253	1.104	1.275	3837.655		
1986	4128.898	4	8.326	8.403	0.811	0.955	4459.053		
1987	5061.300	5	8.529	8.553	0.563	0.599	5181.069		
1988	5939.500	6	8.689	8.703	0.360	0.377	6019.995		
1989	6550.500	7	8.787	8.853	0.203	0.266	6994.761		
1990	7671.500	8	8.945	9.003	0.090	0.128	8127.362		
1991	8602.700	9	9.060	9.153	0.023	0.059	9443.356		
1992	9662.500	10	9.176	9.303	0.000	0.016	10972.437		
1993	10498.200	11	9.259	9.453	0.023	0.002	12749.109		
1994	14969.800	12	9.614	9.603	0.090	0.097	14813.462		
1995	16681.100	13	9.722	9.753	0.203	0.175	17212.078		
1996	19828.700	14	9.895	9.903	0.360	0.350	19999.082		
1997	23636.900	15	10.071	10.054	0.563	0.589	23237.361		
1998	26898.200	16	10.200	10.204	0.811	0.804	26999.986		
1999	32714.000	17	10.396	10.354	1.104	1.193	31371.861		
2000	40363.200	18	10.606	10.504	1.441	1.697	36451.636		
2001	47715.700	19	10.773	10.654	1.824	2.161	42353.935		
2002	51790.300	20	10.855	10.804	2.252	2.408	49211.943		
					17.342	17.530			
				Coefficient of Determination (R2) =		0.989319	sum((PY - avg(Y)) ^ 2) / sum((Y - avg(Y)) ^ 2)		

Column H computes the values of Y that are "predicted" by the regression trend line. The PY (Predicted Y) values all lay on the regression trend line.

Column I computes (PY – avg(Y)) ^ 2, which is the Explained Variation.

Column J computes (Y – avg(Y)) ^ 2, which is the Total Variation.

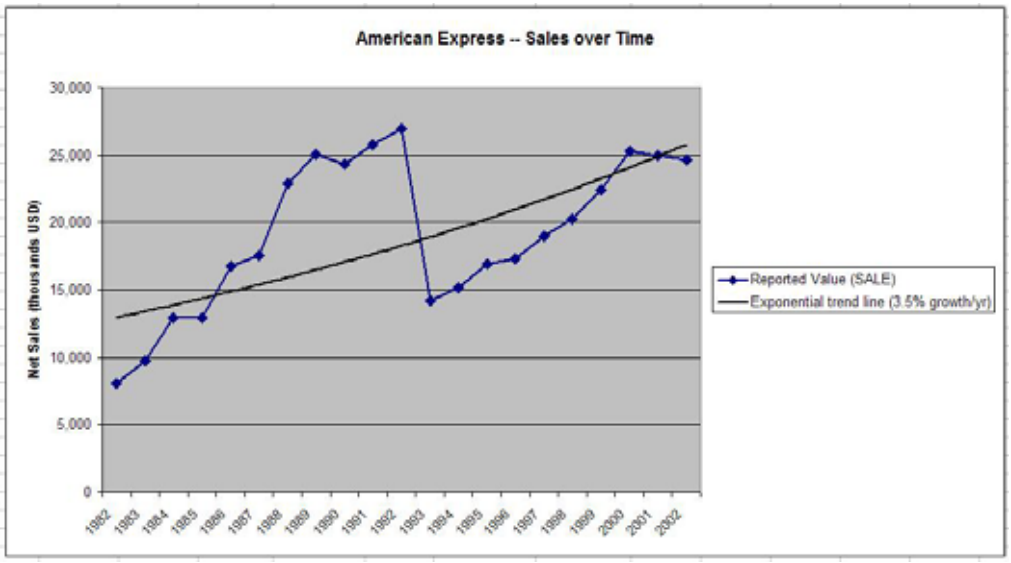
Compute R2 by dividing the Explained Variation by the Total Variation. The R2 of Merck's sales is 0.989 (98.9%). This value of R2 indicates that there is an extremely good fit between the calculated exponential trend line and the original data values. Merck's sales growth rate has been remarkably stable over time.

Column K computes the values of SALE that are "predicted" by the regression trend line. These PSALE values can be plotted to produce the exponential trend line for the original SALE values. This is the exponential trend line that best fits the original SALE values. Note that the first PSALE value (2446.446) does not necessarily equal the first SALE value (3063.016).

You can verify that R2 is correct by using Excel's built-in function LINEST to perform the same linear regression and return the regression statistics. The value for R2 is highlighted, and matches the value that we computed above.

Regression statistics:		
0.150075	7.802392	Highlight range of cells.
0.003577	0.041822	Enter formula =linest(D5:D25,C5:C25,TRUE,TRUE)
0.989319	0.099270	Press Ctrl-Shift-Enter.
1759.820695	19	Regression statistics are written to the range of cells.
17.342328	0.187237	

If you look at another company, American Express (GVKEY 001447), the exponential trend line shows that sales have been growing, on average, 3.5% per year. However, the computed R2 is only 0.403686 and there is not a good fit between the calculated exponential trend line and the original data values. In other words, the sales growth rate of American Express has not been very stable over time.



Things to Consider

When implementing the calculations of Least-Squares Growth Rate and the Coefficient of Determination, consider the following factors.

Multiple-year Growth Rate: To compute a "10-year Growth Rate", you will need data for 11 years. To compute a "5-year Growth Rate", you will need data for 6 years.

Unadjusted data: Data items in Compustat Xpressfeed are delivered unadjusted. When a stock split occurs, Standard & Poor's does *not* go back into the historical data periods and adjust the price-related and share-related items that are affected by the stock split. Instead, a separate "cumulative adjustment factor" is provided that records the cumulative effect of stock splits (and other capital actions) on price-related and share-related items. Therefore, when computing the

growth rate of price-related and share-related items, you must apply the cumulative adjustment factor to the unadjusted values, and then use the resulting *adjusted* values in the growth rate calculation.

MICROSOFT CORP

	Cum Adj Factor	EPS	Adjusted EPS	Time	ln(Adjusted EPS)	
YEAR	AJEX	EPSPX	EPSPX / AJEX	X	Y	etc…
1985	288.000	1.0400	0.0036	0	-5.624	
1986	288.000	1.5600	0.0054	1	-5.218	
1987	288.000	2.6000	0.0090	2	-4.707	
1988	144.000	2.2200	0.0154	3	-4.172	
1989	144.000	3.0300	0.0210	4	-3.861	
1990	72.000	2.3400	0.0325	5	-3.427	
1991	48.000	2.4700	0.0515	6	-2.967	
1992	32.000	2.4100	0.0753	7	-2.586	
1993	32.000	3.1500	0.0984	8	-2.318	
1994	16.000	1.8800	0.1175	9	-2.141	
1995	16.000	2.3200	0.1450	10	-1.931	
1996	16.000	3.4300	0.2144	11	-1.540	
1997	8.000	2.6300	0.3288	12	-1.112	
1998	4.000	1.8300	0.4575	13	-0.782	
1999	2.000	1.5400	0.7700	14	-0.261	
2000	2.000	1.8100	0.9050	15	-0.100	
2001	2.000	1.4500	0.7250	16	-0.322	
2002	2.000	1.4500	0.7250	17	-0.322	
2003	1.000	0.9300	0.9300	18	-0.073	

Negative and zero data values: If any of the data values are negative or zero, the Least-Squares Growth Rate cannot be computed because ln(x) is undefined when x is <= 0.0.

Missing data values: One or more of the data values in the time series may be missing, but if more than half of the data values are missing, the Growth Rate should not be computed. If only a few values are missing, the growth rate can still be computed. Be careful, however, to omit *both* the X and the Y values from the calculation. For example, when the missing values are excluded, the correct avg(X) is 4.9 (not 5.5):

MAYFLOWER GROUP INC/IN

	Net Sales	Time	ln(SALE)	
YEAR	SALE	X	Y	etc…
1982	341.224	0	5.833	
1983	379.251	1	5.938	
1984	480.723	2	6.175	
1985	619.264	3	6.429	
1986	705.796	4	6.559	
1987	584.501	5	6.371	
1988	611.633	6	6.416	
1989	675.750	7	6.516	
1990	N/A	~~8~~	~~N/A~~	
1991	N/A	~~9~~	~~N/A~~	
1992	654.684	10	6.484	
1993	677.493	11	6.518	
		avg(X) = 4.9		

Preliminary data values: Standard & Poor's may make a *preliminary* update to a company's data and follow later with a *final* update. For example, a company may issue a press release containing fairly complete Balance Sheet and Income Statement information. Standard & Poor's will update Compustat Xpressfeed with these preliminary numbers and set the Update Code (UPD) to 2. When the company files its Annual Report, Standard & Poor's will update the preliminary numbers with final numbers and set the Update Code (UPD) to 3.

For example, if ELKCORP (GVKEY 004251) has not yet filed its Annual Report, the sales number below for 2003 is considered preliminary. When selecting the data values for computing a growth rate, you need to decide whether or not to include preliminary values in the calculation. You can use the Update Code (UPD) and Source Document Code (SRC) to detect preliminary values.

ELKCORP

Year	Fiscal Year End Month	Update Code	Source Document Code		Net Sales
DATADATE	FYR	UPD	SRC		SALE
6/30/1992	6	3	53	Report to Shareholders	149.109
6/30/1993	6	3	53	Report to Shareholders	172.974
6/30/1994	6	3	53	Report to Shareholders	157.031
6/30/1995	6	3	53	Report to Shareholders	159.061
6/30/1996	6	3	53	Report to Shareholders	196.462
6/30/1997	6	3	53	Report to Shareholders	230.756
6/30/1998	6	3	53	Report to Shareholders	268.178
6/30/1999	6	3	53	Report to Shareholders	317.874
6/30/2000	6	3	53	Report to Shareholders	350.275
6/30/2001	6	3	53	Report to Shareholders	379.156
6/30/2002	6	3	53	Report to Shareholders	506.526
6/30/2003	6	**2**	**88**	**Subsequent period source**	**506.146**

Delayed reporting: It is possible that a company's most-recent data record may not be available. The date when the Annual Report is filed depends on the company's Fiscal Year End (i.e. not all companies close their books after December). A company may delay the filing of its Annual Report beyond the typical filing date (for example, if the company is under investigation by the SEC). If a company recent data record is not complete (i.e., some data items do not have values), check the update code. As previously stated, an update code of 2 indicates that a preliminary source was used and a final source has not been received and/or updated yet. I

Quarterly data: Compustat Xpressfeed contains both Annual and Quarterly data. The Least-Squares Growth Rate and Coefficient of Determination can be calculated for a quarterly time series using the method described above. Remember that the resulting rate is the growth *per quarter* (not per year).

Notes:

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