B

1. Back Testing

Testing a value-at-risk or other model using historical data. For example, under the current BIS market risk-based capital requirements, a bank must back test its internal market model over a minimum of 250 past days if it is used for capital requirement calculations. If the forecast VAR errors on those 250 days are too large (i.e., risk is underestimated on too many days), a system of penalties is imposed by regulators to create incentives for bankers to get their models right.

2. Back-to-Back Transaction

A transaction where a dealer enters into offsetting transactions with different parties, effectively serving as a go-between.

3. Backward Equation

[See **Kolmogorov backward equation**]

4. Backwardation

A forward curve in which the futures prices are falling with time to expiration.

5. Backwardization

The situation in which futures prices in futures contracts that expire farther in the future are below prices of nearby futures contracts.

6. Backwards Induction

A procedure for working from the end of a tree to its beginning in order to value an option.

7. Bad Debts

Loans that are due but are uncollectible.

8. Balance Inquiry

A request by a depositor or borrower to obtain the current balance in his or her account.

9. Balance Sheet

The balance sheet provides a static description of the firm's financial position at a fixed point in time. It details the firm's assets and liabilities at the end of the fiscal year for an annual report or at the end of a quarter for a quarterly statement.

The balance comes from a basic accounting equality:

Total assets = Total liabilities + Total equity.

This equation implies that a firm's assets must equal the total of its liabilities and owners' equity. Stated more informally, what the firm owns (assets) equals what it owes (liability claims to creditors plus equity claims to shareholders). The balance sheet shows how all assets are financed, either by borrowing (debt) or owners' investment (equity).

The left-hand side of the balance sheet reports company assets. It divides the total into current assets, plant and equipment, and other assets (which may include such intangible assets as patents and goodwill). The balance sheet lists these categories in order of liquidity. Liquidity is the ability to quickly convert an asset to cash without a loss in value. The most liquid assets, cash and short-term investments of excess cash, such as marketable securities, are listed first; less liquid assets follow.

The right-hand side of the balance sheet shows the claims against company assets. Categories for these claims include current liabilities, long-term debt, common stock, and retained earnings. The liability and equity claims are listed in order of increasing maturity. This order also reflects the general priority of the claims of creditors and equity holders against the firm's cash flows.

10. Balanced Funds

The balanced funds offer a complete investment program to their clients, so far as marketable securities are concerned. Their portfolio are presumably structured to include bonds and stocks in a ratio considered appropriate for an average individual investor given the return outlook for each sector and possibly a risk and volatility constraint.

11. Balloon Loan

A loan that requires small payments that are insufficient to pay off the entire loan so that a large final payment is necessary at termination.

12. Balloon Payment

Large final payment, as when a loan is repaid in installments. For example, (i) most high-quality bond issues establish payments to the sinking fund that are not sufficient to redeem the entire issue. As a consequence, there is the possibility of a large balloon payment at maturity; (ii) if a lease has a schedule of payments that is very high at the start of the lease term and thereafter very low then these early balloon payments would be an evidence that the lease was being used to avoid taxes and not for a legitimate business purpose.

13. Bank Discount Yield

An annualized interest rate assuming simple interest, a 360-day year, and using the face value of the security rather than purchase price to compute return per dollar invested.

14. Bank Drafts

Bank drafts, or bills of exchange, is a basic instrument of foreign trade financing that allow exporters to use their banks as collection agents for foreign accounts. The bank forwards the exporter's invoices to the foreign buyer, either by mail or through a branch or correspondent bank in the buyer's country. When the buyer pays the draft, the exporter's bank converses the proceeds of the collection into the exporter's currency and deposits this money in the exporter's account. Two kinds of bank drafts include **sight drafts** and **time drafts**. [See also **Sight draft** and **Time draft**]

15. Bank Holding Company

Any firm that owns or controls at least one commercial bank.

16. Bank Of Japan Financial Network System

As the Japanese banks have become increasingly more important in international financial flows, their transfer systems also have grown in importance. The Bank of Japan Financial Network System (BOJ-NET) is a cash and securities wire transfer system for yen-denominated payments. The cash wire, an online funds transfer system for banks, is the Japanese counterpart of CHIPS. Financial institutions use BOJ-NET to provide net settlement services for the Japanese clearinghouse system that clears bills and checks. BOJ-NET also provides settlement for the Japanese electronic fund transfer (EFT) system called *Zenguin*. Institutions also can use BOJ-NET to settle yen payments that arise from cross-border transfers and foreign-exchange transactions.

17. Bank-Discount Interest

Bank-discount interest commonly is charged for short-term business loans. Generally, the borrower makes no intermediate payments, and the life of the loan usually is one year or less. Interest is calculated on the amount of the loan, and the life of the loan usually is one year or less. Interest is calculated on the amount of the loan, and the borrower receives the difference between the amount of the loan and the amount of interest. In the example, this gives an interest rate of 15 percent. The interest ($150,000) is

subtracted from the $1 million loan amount and the borrower has the use of $850,000 for one year. Dividing the interest payment by the amount of money actually used by the borrower ($150,000 divided by $850,000), we find the effective rate is 17.6 percent.

18. Banker's Acceptance

The banker's acceptance is a comparatively specialized credit source largely confined to financing foreign trade (its only major use within the US has been in financing purchases of raw cotton crops). One of the major difficulties in conducting business overseas is in accessing the creditworthiness of potential customers. This problem is best solved by getting a bank to add its reputation to that of the buyer by accepting, or endorsing, the note payable. The investment attractiveness of banker's acceptances must be stressed because most investors are unfamiliar with this short-term, liquid high-yielding investment.

Banker's acceptances are **time drafts** drawn on and accepted by banks, usually to secure arrangements between unfamiliar firms. [See also **Time draft**] They are frequently used in international trade. After generating a banker's acceptance, a bank typically sells it to an investor at a discount. Maturities range from 30 to 180 days, while denominations vary from $25,000 to over $1 million, depending upon the specific transaction the banker's acceptance was originally created to finance. Banker's acceptances are relatively illiquid compared to T-bills and most carry higher yields than CDs because of the heterogeneous characteristics.

The interest rate on acceptances is quite low, usually at or very slightly above the prime rate. Any bank that performs services of this kind for its customers probably will expect to be compensated in other ways, however, especially through the maintenance of good demand deposit balances.

In sum, Banker's acceptance is an agreement by a bank to pay a given sum of money at a future date. These agreements typically arise when a seller sends a bill or draft to a customer. The customer's bank accepts this bill and notes the acceptance on it, which makes it an obligation of the bank.

19. Bankers Bank

A firm that provides correspondent banking services to commercial banks and not to commercial or retail deposit and loan customers.

20. Bankrupt

The situation in which a borrower is unable to pay obligated debts.

21. Bankruptcy Costs

The major drawback of having debt in the capital structure is its legal requirement for timely payment of interest and principal. As the debt-to-equity ratio rises, or as earnings become more volatile, the firm will face higher borrowing costs, driven upward by bond investors requiring higher yields to compensate for additional risk.

A rational marketplace will evaluate the probability and associated costs of bankruptcy for a levered firm. Bankruptcy costs include explicit expenses, such as legal and accounting fees and court costs, along with implicit costs, such as the use of management time and skills in trying to prevent and escape bankruptcy. It also is difficult to market the firm's products and keep good people on the staff when the firm is teetering on the brink of bankruptcy.

The market will evaluate the present value of the expected bankruptcy costs and reduce its estimate of the value of the firm accordingly. When bankruptcy costs are included in an analysis of M&M Proposition I with taxes, the value of the firm is given as:

$$V_L = V_U + (T)(D) - PV(V_L)$$

This says that the value of the levered firm equals the value of the unlevered firm (V_U) plus the present value of the interest tax shield [$(T)(D)$], minus the present value of expected bankruptcy costs ($PV(V_L)$). Incorporating bankruptcy costs into M&M Proposition I relationship between firm value and debt reduces the debt-to-equity ratio at which the firm's value is maximized to less than 100-percent debt financing. According to the **static tradeoff hypothesis**, increases in debt beyond this optimal level actually reduce firm value, as investors' perceptions of the increased cost of bankruptcy outweigh the tax benefits of additional debt. [See also **Static tradeoff hypothesis**]

In sum, debt puts pressure on the firm, because interest and principal payment are obligations. If these obligations are not met, the firm may risk some sort of financial distress. The ultimate distress is bankruptcy, where ownership of the firm's assets is legally transferred from the stockholders to the bondholders. Bankruptcy costs tend to offset the advantage to debt. [Also see **Financial distress costs** and **Modigliani and Miller (M&M) Proposition I**]

22. Barbell

An investment portfolio in which a large fraction of securities mature near-term and another large fraction of securities mature longer-term.

23. Bargain-Purchase-Price Option

Gives lessee the option to purchase the asset at a price below fair market value when the lease expires.

24. Barrier Option

An option that has a payoff depending upon whether, at some point during the life of the option, the price of the underlying asset has moved pass a reference price (the barrier). Examples are knock-in and knock-out options. [See **Knock-in option** and **Knock-out option**]

25. Base Case

Incremental cash flows are the anticipated changes in cash flow from the base case. [See also **Incremental cash flows**] The firm's base-case projection must assess what the firm's market share and cash flows would be if *no* new projects were implemented; in other words, the after-tax cash flows *without* the project. The firm's planners must recognize that if nothing is done, customers may start buying competitors' products in response to the marketing, new product development, and/or quality efforts of the competition. The base-case estimate should reflect these potential declines in cash flow.

26. Base Rate

An interest rate used as an index to price loans; typically associated with a bank's weighted marginal cost of funds.

27. Basic IRR Rule

This is one of the capital budgeting decision rules. Accept the project if IRR (internal rate of return) is greater that the discount rate; reject the project if IRR is less than the discount tare. [See also **Internal rate of return**]

28. Basic Research

A high-risk/high-reward pursuit component of the research and development (R&D) portfolio. Basic research is research to gain knowledge for its own sake.

29. Basic Swap

A plain vanilla interest rate swap in which one party pays a fixed interest rate and receives a floating rate, while the other party pays a floating rate and receives a fixed rate with all rates applied to the same, constant notional principal amount.

30. Basis

The difference between futures price and the spot price. Basis is one kind of risk in investments.

31. Basis Point

When used to describe an interest rate, a basis point is one hundredth of one percent (= 0.01 percent).

32. Basis Risk

The possibility of unexpected changes in the difference between the price of an asset and the price of the contract hedging the asset. It's the uncertainty that the futures rate minus the cash rate will vary from that expected.

33. Basis Swap

Exchange of floating rate payments between counterparties but with interest rates based on the different indexes.

34. Basket Credit Default Swap

Credit default swap where there are several reference entities.

35. Basket Option

An option that provides a payoff dependant on the value of a portfolio of assets.

36. Baumol's Economic Order Quantity Model

The Baumol's model strives to equate the two opposing marginal costs associated with ordering and holding inventory to minimize total costs. Just as an operations manager sets inventory levels for raw materials and components, a financial manager can treat cash as a manageable inventory and try to minimize the sum of the following costs:

1. Carrying or opportunity costs equal to the rate of return foregone to hold cash, and vice versa; 2. Ordering or transaction costs from converting securities into cash.

The total costs of cash balances can be defined as:

Total costs = Holding costs + Transactions costs

$$= \frac{C}{2} r + \frac{T}{C} F,$$

where C = amount of cash raised by selling marketable securities or borrowing; $C/2$ = average cash balance; r = opportunity cost of holding cash (the foregone rate of return on marketable securities); T = total amount of new cash needed for transaction over entire period (usually one year); T/C = number of transactions; and F = fixed cost of making a securities trade or borrowing money.

The minimum total costs are obtained when C is set equal to C^*, the optimal cash balance. C^* is defined as follows:

$$C^* = \sqrt{\frac{2FT}{r}},$$

where C^* = Optimal amount of cash to be raised by selling marketable securities or by borrowing.

The prior equation represents Baumol's economic order quantity (EOQ) model for determining optimal cash balances. The optimal average cash balance can be defined as $C^*/2$.

In applying Baumol's EOQ model to find an optimal cash balance, the manager must be aware of its underlying assumptions about cash flows:

1. Cash outflows occur at a constant rate.
2. Cash inflows occur periodically when securities are liquidated.
3. Net cash flows also occur at a predictable rate.

EOQ is positively related to F and T and inversely related to r. By taking the square root of FT/r, the relationship with EOQ is less than proportionate. If the value of fixed transaction costs doubles, the EOQ will increase by only 1.41 times.

While the EOQ model offers useful insight into the determination of optimal cash balances, its restrictive assumptions about cash flow behavior are not particularly realistic. Most firms' cash inflows are interspersed with cash outflows. Inflows occasionally exceed flows of outgoing payments. Thus, cash balances over a planning period will move both upward and downward at varying intervals, whereas the EOQ model implicitly assumes demand for cash (inflows) to be positive. Another problem with the EOQ framework is its assumption that inflows (revenue and security sales) are nonrandom and controllable, while outflows (operating costs) are random and uncontrollable. In actuality, control over inflows and outflows is seldom absolute.

37. Bear CD

A bank CD pays the holder a fraction of any fall in a given market index. In other words, the bear CD's payoff increases as the overall level of a particular market index declines. [See also **Bull CD**]

38. Bear Spread

Bear spread is also called short vertical spread. It is simply the reverse of a long vertical spread. Under this case an investor buys a high-exercise-price call (or put) and sells a low-exercise-price call (or put), both having the same time to expiration left. [See also **Bull spread**]

39. Bearer Bond

A bond issued without record of the owner's name. Whoever holds the bond (the bearer) is the owner. There are two drawbacks to bearer bonds; first, they can be easily lost or stolen. Second, because the company does not know who owns its bonds, it cannot notify bondholders of important events.

40. Benchmark Analysis

Financial ratios can be used in *benchmark analysis*, in which the ratios of a specific firm can be com-

pared to a benchmark, such as the industry average or an ideal target or goal determined by management. Data for industry average financial ratios are published by a number of organizations, such as Dun & Bradstreet, Robert Morris Associates, Financial Dynamics, Standard & Poor's, and the Federal Trade Commission. These information sources are readily available at most libraries.

41. Benchmark Error

Use of an inappropriate proxy for the true market portfolio.

42. Benchmark Rate

The key driver rate used in sensitivity analysis or simulation models to assess interest rate risk. Other model rates are linked to the benchmark rate in terms of how they change when the benchmark rate changes.

43. Beneficiary

The recipient of the balance in a trust account upon termination of the trust.

44. Benefit/cost Ratio

A discounted cash flow technique for evaluating capital budgeting projects; more frequently called the **profitability index (PI)**. [See also **Profitability index**]

45. Bermudan Option

An option that can be exercised on specified dates during it life. It is also called as Mid-Atlantic or limited exercise options. This kind of option is a hybrid of American and European options. Instead of being exercised any time before maturity as standard American options, they can be exercised only at a discrete time points before maturity.

46. Best Efforts Offering

A best efforts offering is a less common type of IPO issued by a financially weaker, small, or otherwise risky firm. The investment bank agrees to assist in the marketing of the firm's shares using its best effort and skill but only to sell the shares on a commission basis. The bank buys none of the stock and risks none of its own money. Thus, in a best efforts offering, the issuer bears the risk of price fluctuations or low market demand. If all the shares in a best efforts offering cannot be sold, the issuer may cancel the offering and return all the funds it receives to investors.

Investors should view best efforts offerings with caution. If the knowledgeable investment bank is not willing to risk money to underwrite the firm, why should the investor risk money on the shares.

47. Best-Efforts Underwriting

The underwriter of securities commits to selling as many securities as possible and returns all unsold shares or units to the issuer. [See also **Best efforts offering**]

48. Beta

An estimate of the systematic or market risk of an asset within the capital asset pricing model (CAPM) framework. [See also **Beta coefficient**]

49. Beta Coefficient

We call an asset's or portfolio's systematic risk its beta, denoted by a capital Greek letter β. Beta measures how an asset's returns (R_i) vary with the market portfolio's returns (R_m), compared to the total risk of the market portfolio as:

$$\beta_i = \frac{\text{cov}(R_i, R_m)}{\sigma_m^2},$$

where $\text{cov}(R_i, R_m)$ = Covariance between R_i and R_m; σ^2_m = variance of R_m.

From this perspective, assets that add to portfolio systematic risk will have a high covariance with the market's returns and will therefore have a large beta. Assets that reduce portfolio systematic risk will have a low covariance and a low beta.

Beta is also equal to:

$$\beta = \frac{\rho_{im}\sigma_i\sigma_m}{\sigma_m^2},$$

where σ_i and σ_m are standard deviation of R_i and R_m, respectively; ρ_{im} is the correlation coefficient between R_i and R_m.

If any asset or portfolio has the same exposure to systematic risk as the market portfolio, its beta equals one. Thus, unlike portfolio variance, beta is not an absolute measure of risk. Rather, beta is a measure of relative risk. Beta measures the volatility or variability of an asset's returns *relative* to the market portfolio.

Yet another way to estimate beta is to use regression analysis. To determine an asset's beta, we need to estimate the following regression equation, called the *market model*:

$$R_{it} = \alpha_i + \beta_i R_{mt} + e_{it},$$

where R_{it} = the return on the ith asset at time t, R_{mt} = the market return at time t, α_i = the intercept term of the regression, β_i = the slope coefficient of the regression, and e_{it} = a random error term.

The estimate of the slope is an estimate of the asset's beta since the slope coefficient measures how volatile an asset's returns are relative to the market's returns. If an asset's returns generally rise (or fall) half as much as those of the market, its beta will be 0.5. Knowing that beta equals 0.5 tells us little about the asset's variance of returns over time, or the asset's expected range of returns. As a relative measure of volatility, beta tells us only how, on average, the asset's returns follow those of the overall market.

Assets that are more volatile than the market or, in other words, assets that are more sensitive to systematic risk than the market, have betas greater than 1.0; whatever the market return is, these assets' average returns are larger in *absolute value*. Assets that are less volatile than the market, or

those that have less systematic risk, have betas less than 1.0. These assets' returns, on average, are less in absolute value than those of the market.

50. Bid

An offer to purchase at a specified price.

51. Bid Price

The price at which a dealer is willing to purchase a security.

52. Bid-Ask Spread

The difference between a dealer's bid and asked price. The bid is the highest price anyone has declared that he wants to pay for a security at a given time; ask is the lowest price anyone will take at time same time.

53. Bidder

A firm or person that has made an offer to take over another firm. The bidder offers to pay cash or securities to obtain the stock or assets of another company.

54. Bid-Offer Spread

The amount by which the offer price exceeds the bid price. It is also called bid-ask spread. [See also **Bid-ask spread**]

55. BIF

Bank Insurance Fund that insures deposits at commercial banks. This is one of the two insurance funds under Federal deposit insurance company (FDIC). The other insurance fund is the Sanngs Association Fund (SAIF). [See also **SAIF**]

56. Bill of Lading

The bill of lading (B/L) is a shipping document that governs transportation of the shipper. Essentially it is a shipping document that governs transportation

of the exporter's goods to the importer. The seller submits the invoices and the bill of lading to the correspondent bank. The bank, in turn, verifies the paperwork and pays the seller. The correspondent bank then sends the paperwork to the buyer's bank, which pays the correspondent bank and sends the documents to the buyer, who makes the payment.

57. Binary Option

Option with a discontinuous payoff; for example, a cash-or-nothing option or an asset-or-nothing option.

58. Binomial Option-Pricing Model

A model where the price of an asset is monitored over successive short periods of time. In each short period, it is assumed that only two price movements are possible. The binomial option pricing model is the most famous binomial model in finance. [See Rendelman and Bartter, 1979; see also **Appendix G**]

59. Binomial Process

[See **Binomial tree**]

60. Binomial Tree

A representation of possible asset price movements over time, in which the asset price is modeled as moving up or down by a given amount each period. This is a special case of a decision tree analysis. [See also **Decision trees**]

61. Bivariate Normal Distribution

A distribution for two correlated variables, each of which is normal. American option with one dividend payment needs to use this distribution to determine its value.

62. Black's Model (Formula)

A version of Black-Scholes formula in which the underlying asset is a futures price and the dividend

yield is replaced with the risk-free rate. The formula is written as:

$$C(F,K,\sigma,r,t,r) = Fe^{-rt}N(d_1) - Ke^{-rt}N(d_2),$$

$$d_1 = \frac{\ln(F/K) + \frac{1}{2}\sigma^2 t}{\sigma\sqrt{t}},$$

$$d_2 = d_1 - \sigma\sqrt{t},$$

where F = futures price; K = exercise price; r = risk-free rate; σ = standard deviation of rates of return; and t = contract period; $N(d_1)$ and $N(d_2)$ are cumulative normal density functions in terms of d_1 and d_2.

The put price is obtained using the parity relationship for options of futures:

$$P(F,K,\sigma,r,t,r) = C(F,K,\sigma,r,t,r) + Ke^{-rt} - Fe^{-rt}.$$

63. Black-Scholes Formula

An equation to value a call option that uses the stock price, the exercise price, the risk-free interest rate, the time to maturity, and the standard deviation of the stock return as:

$$C = SN(d_1) - Xe^{-rt}N(d_2),$$

$$\text{where}\quad d_1 = \frac{\ln(S/X) + (r + \sigma^2/2)t}{\sigma\sqrt{t}},$$

$$d_2 = d_1 - \sigma\sqrt{t},$$

C = current call option value; S = current stock price; $N(d)$ = the probability that a random draw from a standard normal distribution will be less than d, equals the area under the normal curve up to d; X = exercise price; $e = 2.71828$, the base of the natural log function; r = risk-free interest rate; $\ln$ = natural logarithm function; and σ = standard deviation of the annualized continuously compounded rate of return of the stock.

Like most of the models, the Black-Scholes formula is based on some important underlying assumptions:

1. The stock will pay no dividends until after the option expiration date.
2. Both the interest rate, r, and variance rate, σ^2, of the stock are constant.

3. Stock prices are continuous, meaning that sudden extreme jumps such as those in the aftermath of an announcement of a takeover attempt are ruled out.

64. Black-Scholes Option Pricing Model

Black and Scholes came up with a mathematical model to determine the value of an option.

Step 1: Assume the future stock price is constant over time.

Following the equation, $C = \text{Max}(0, S - X)$, where Max denotes the larger of the two bracketed terms, if the stock price is constant over time, then the value of the call, C, is the current price of the stock, S, less the present value of the exercise price, X. Mathematically, the value of the call option, assuming discrete compounding of interest rate is

$$C = S - \frac{X}{(1+r)^t}.$$

If continuous compounding is assumed, then the equation becomes: $V_C = P - Xe^{-rt}$, where e is a constant approximately equal to 2.71828.

Step 2: Assume the price of the stock fluctuates over time.

In this case, we need to adjust the equation for the fluctuation associated with the uncertainty. If we assume that the stock's returns follow a normal distribution, then both S and X in the equation can be adjusted for the uncertainty factor associated with the fluctuation of the stock's price over time. The call option pricing model thus becomes

$$C = SN(d_1) - Xe^{-rt}N(d_2),$$

$$\text{where}\quad d_1 = \frac{\ln(S/X) + (r + \frac{\sigma^2}{2})t}{\sigma\sqrt{t}},$$

$$d_2 = d_1 - \sigma\sqrt{t}, r = \text{risk-free interest rate,}$$

and t = time until the option expires (in years).

This equation is the well-known Black-Scholes option pricing model. The adjustment factors $N(d_1)$ and $N(d_2)$ represent the cumulative standard normal distribution function. $N(d_1)$ and $N(d_2)$ are probabilities that a random variable with a standard normal distribution takes on a value less than d_1 and d_2, respectively. The values for $N(d_1)$ and

$N(d_2)$ can be found by using a standardized normal distribution table.

65. Blank Check

A signed check with no amount indicated.

66. Blanket Lien

A loan may specify a blanket lien, or a claim against all work in progress or inventory on hand. For example, if a business mass produces low-value items, it is not practical to give the bank claims against specific items. In other words it refers a secured loan that gives the lender a lien against all the borrower's inventories. [See also **Collateral**]

67. Blanket Mortgage

A blanket mortgage is a claim on all the issuer's real property, including land, buildings, and equipment.

68. Block House

Brokerage firms that help to find potential buyers or sellers of large block trades.

69. Block Sale

A transaction of more than 10,000 shares of stock.

70. Block Transactions

Large transactions in which at least 10,000 shares of stock are bought or sold. Brokers or ''block houses'' often search directly for other large traders rather than bringing the trade to the stock exchange.

71. Board Broker

Individual who handles limit orders in some exchanges. The board broker makes information on outstanding limit orders available to other traders.

72. Board of Directors

Individuals elected by stockholders to manage and oversee a firm's operations.

73. Board of Governors of the Federal Reserve System

The policy-setting representatives of the Federal Reserve System in charge of setting the discount rate, required reserves, and general policies designed to affect growth in the banking system's reserves and US money supply.

74. Bogey

In portfolio performance analysis, the attribution method explains the difference in returns between a managed portfolio and selected benchmark portfolio is called the bogey. Attribution studies start from the broadest assets allocation choices and progressively focus on ever-finer details of portfolio choice.

75. Bond

A long-term debt of a firm. In common usage, the term *bond* often refers to both secured and unsecured debt. Bonds usually have a face value, it is also called the principal value or the denomination and it is stated on the bond certificate. In addition, the par value (i.e., initial accounting value) of a bond is almost always the same as the face value.

76. Bond Broker

A broker who trades bonds on an exchange.

77. Bond-Equivalent Basis

With bond-equivalent basis, yield calculations use the same number of days for both interest-bearing periods and interest-compounding periods. For example, to figure the annual yield using daily compounding, the annual interest rate might be divided by 365 days, and the result is then compounded for 365 days to get the annual yield.

78. Bond Equivalent Yield of the T-bill

Bond equivalent yield of T-bill (Y_{BEY}) is generally calculated on an annual percentage rate (APR) method as:

$$Y_{BEY} = \frac{10{,}000 - P}{P} \times \frac{365}{n},$$

where P and n represent market price and the number of days owned the T-bill, respectively. It differs from the effective annual yield method. [See also **APR, Effective annual yield**]

79. Bond Fund

A mutual fund that invests in debt instruments. It is an income fund instead of growth fund.

80. Bond Option

An option where a bond is the underlying asset.

81. Bond Ratings

Most issuers secure bond ratings from one or more agencies such as Standard & Poors (S&P), Moody's, Fitch, and Duff and Phelps. From its analysis and discussions with management, the agency assigns a bond rating. In addition, the rating agency commits to a continual reexamination of the issue's risk. For example, should the financial position of the firm weaken or improve, S&P may place the issue on its *Credit Watch* list, with negative or positive implications. Shortly thereafter, S&P will downgrade, upgrade, or reaffirm the original rating.

Bond rating is another example of an agency cost. [See also **Agency costs**] To show potential investors the credit quality of its bonds, the firm hires a recognized independent third party to rate its bond offering. Even if the bonds receive a lower-than-expected rating and the firm must issue the bonds with a higher coupon to compensate investors for the extra risk, the benefits of a rating in terms of attractiveness to investors and issue liquidity outweigh these extra costs.

Despite the initial cost and the concern that a lower-than-expected rating may cause managers, a bond rating makes it much easier to sell the bonds in the primary market offering, as well as in the secondary market. The rating acts as a signal to the market that an independent agency has examined the qualities of the issuer and the issue and has determined that the credit risk of the bond issue justifies the published rating. An unrated bond issue risks a cool reception in the primary market and thin illiquid, secondary markets (i.e., bond traders and investors are not interested in buying or selling the particular issues). Investors may have good reason to wonder, "What is the firm trying to hide? If this really was an attractive bond issue, the firm would have had it rated." In addition, certain types of investors, such as pension funds and insurance companies, may face restrictions against purchasing unrated public debt. Examples of bond rating categories are presented in the table.

	Moody's	Standard & Poor's	Former Standard & Poor's
Best quality, smallest degree of risk	Aaa	AAA	AAA
High quality, slightly more long-term risk than top rating	Aa1 Aa2 Aa3	AA+ AA AA−	AA
Upper-medium grade, possible impairment in the future	A1 A2 A3	A+ A A−	A

	Moody's	Standard & Poor's	Former Standard & Poor's
Medium-grade, lack outstanding investment characteristics	Baa1	BBB+	BBB
	Baa2	BBB	
	Baa3	BBB−	
Speculative issues, protection may be very moderate	Ba1	BB+	BB
	Ba2	BB	
	Ba3	BB−	
Very speculative, may have small assurance of interest and principal payments	B1	B+	B
	B2	B	
	B3	B−	
Issues in poor standing, may be in default	Caa	CCC	CCC
Speculative in a high degree, with marked shortcomings	Ca	CC	CC
Lowest quality, poor prospects of attaining real investment standing	C	C	C
Default	D	D	D

82. Bond Valuation

Theoretical value of bond is equal to present value of the annuity for future interest payments and the present value of the face value of bond. Suppose that a bond with par (face) value F is purchased today and that the bond matures in N years. Let us assume that interest payments of dollar amount I are to be made at the end of each of the next N years. The bondholders will then receive a stream of N annual payments of I dollars, plus a payment of F dollars at the end of the Nth year. Using the rate of interest r to discount future receipts, the present value of the bond is

$$PV = \sum_{t=1}^{N} \frac{I}{(1+r)^t} + \frac{F}{(1+r)^N}. \qquad (A)$$

The first term on the right-hand side of Equation (A) is the present value of the stream of interest payments, while the second term is the present value of the future of the par amount.

83. Bond Yield

Discount rate which, when applied to all the cash flows of a bond, causes the present value of the cash flows to equal the bond's market price. [See also **Yield to maturity**]

84. Book Cash

A firm's cash balance as reported in its financial statements. Also called ledger cash. It is not the same thing as the balance shown in its bank account (bank cash or collected bank cash).

85. Book Value

Under US GAAP, balance sheet items generally are listed at book value, which is the original or historical cost of the items, less calculated depreciation. Frequently, book value fails to accurately represent the current market value of balance sheet items. For example, LIFO (last-in, first-out) inventory accounting may leave items produced years ago on the books even though they were actually sold time ago. On the other hand, for example, last year's fashions or models may be nearly worthless in the current market, while the balance sheet inventory figure values them at their historical cost. Historical cost may grossly undervalue fixed assets such as land or buildings. Likewise, bond issues, valued at par depending upon interest rate or credit risk changes since they were first issued. Similarly, book values of equity claims will differ from current market prices of company stock issues.

86. Book Value Equity

Total assets minus total liabilities reported on the balance sheet. It includes the par value, capital surplus, and accumulated retained earnings.

87. Book Value Per Share

Per-share accounting equity value of a firm. Total accounting equity divided by the number of outstanding shares. The sum of the par value, capital surplus, and accumulated retained earnings is the common equity of the firm, which is usually referred to as the firm's book value. The book value represents the amount contributed directly and indirectly to the corporation by equity investors.

88. Bootstrapping

This term has two meanings. First, it refers to the procedure where coupon bonds are used to generate the set of zero-coupon bond prices. Second, it means the use of historical returns to create an empirical probability distribution for returns.

89. Borrow

To obtain or receive money on loan with the promise or understanding of returning it or its equivalent.

90. Borrowing Portfolio

On the capital market line, assume that the investor can borrow money at the risk-free rate and invest the money in the risky portfolio. The portfolios with a rate of return higher than the return on market portfolio, but with higher risks, along the line contains a negative amount of the risk-free asset and is called borrowing portfolios. The negative amount invested in the risk-free asset can be viewed as borrowing funds at the risk-free rate and investing in risky assets.

91. Bounce a Check

A depositor writes a check which is returned to the bank and by the bank to the depositor because of insufficient funds.

92. Boundary Condition

The value of a derivative claim at a certain time, or at a particular price of the underlying asset. For example, a boundary condition for a zero-coupon bond is that the bond at maturity is worth its promised maturity value.

93. Box Spread

An option position in which the stock is synthetically purchased (buy call, sell put) at one price and sold (sell call, buy put) at a different price. When constructed with European options, the box spread is equivalent to a zero-coupon bond.

94. Branch Banking

An organizational structure in which a bank maintains facilities that are part of the bank in offices different from its home office. Some states allow banks to set up branches through the state, county, or city. Others prohibit branches.

95. Break Point

A break point occurs when raising an additional dollar of funds results in an increase in the weighted average cost of capital.

We know that firms have two sources of equity financing, each with a different cost: the cost of retained earnings (k_{re}) and the cost of new common stock (k_{cs}). In financing a number of attractive projects, the firm may deplete its retained profits from the current year. A need for additional financing creates a need to recalculate a cost of capital that substitutes the cost of new common stock for the cost of retained earnings. The firm must discount additional investments using the new, incremental or *marginal weighed average cost of capital* as a discount rate.

Similarly, a firm may be able to borrow only a limited amount in a year without harming its credit or bond rating. A downgrade would increase the interest rates it pays to borrow funds. Once the

firm reaches its debt limit, it must calculate a new cost of capital that incorporates the higher cost of borrowing. Any additional investment then must face a higher cost of capital because of the increase in borrowing costs.

Thus, several break points may exist for a firm. One may arise from depleting current retained profits; another may arise from higher borrowing costs if substantial funds are borrowed in a given year; still others may arise from changes in flotation costs or equity costs should large amounts be raised from these sources in a short time frame. [See also **Capital rationing**]

96. Break-Even Analysis

Analysis of the level of sales at which a project would make zero profit. We calculate the break-even point in terms of both accounting profit and present value. [See also **Break-even point, Accounting break-even, Cash breakeven** and **Financial break-even**]

97. Break-Even Point

A firm's break-even point is where revenues equal total costs. [See also **Accounting break-even** and **Cash breakeven**] Break-even point (Q^*) can be defined as:

$$Q^* = \frac{F + D}{P - V},$$

where F, P, V and D represents total fixed cost, price per unit, variable cost per unit, and depreciation, respectively.

98. Bridge Loan

A loan issued to fund a temporary need from the time a security is redeemed to the time another security is issued.

99. Broker

An individual who executes orders for customers for which she receives a commission.

100. Brokered Deposit

Deposits acquired through a money broker (typically an investment bank) in the national markets.

101. Brokered Market

A market where an intermediary (a broker) offers search services to buyers and sellers.

102. Brownian Motion

A stochastic process in which the random variable moves continuously and follows a random walk with normally distributed independent increments. Named after the Scottish botanist Robert Brown, who in 1827 noticed that pollen grains suspended in water exhibited continual movement. Brownian motion is also called a *Wiener process*. This is a basic concept used to derive the continuous type of option pricing model. [See also **Wiener process**]

103. Bubble Theory (of Speculative Markets)

Bubble refers to security prices that move wildly above their true values and eventually burst. After prices eventually fall back to their original level, causing great losses for investors. The crashes of stock markets of US in 1929, 1987, and 2000 are evidences for the bubble theory.

104. Budget Deficit

The amount by which government spending exceeds government revenues. Fiscal condition for a government can be either budget deficit or budget surplus.

105. Bulge Bracket Firms

Firms in an underwriting syndicate that has the highest commitment to assist in placing the underlying securities.

106. Bull CD

A bull CD pays its holder a specified percentage of the increase in return on a specified market index while guaranteeing a minimum rate of return.

107. Bull Spread

Bull spread is also called long vertical spread. It designates a position for which one has brought a low-exercise-price call (or a low-exercise-price put) and sold a high-exercise-price call (or a high-exercise price put) that both mature in the same month.

108. Bullet Loan

A loan that requires payment of the entire principal at maturity.

109. Bullish, Bearish

Words used to describe investor attitudes. *Bullish* means optimistic; *bearish* means pessimistic. Also used in bull market and bear market for describing the stock market.

110. Bundling, Unbundling

A trend allowing creation of securities either by combining primitive and derivative securities into one composite hybrid or by separating returns on an asset into classes. Both cases are financial engineering techniques. Creative security design often calls for bundling primitive and derivative securities into one composite security. Quite often, creating a security that appears to be attractive requires unbundling of an asset. A mortgage pass-through certificate is unbundled into two classes. Class 1 receives only principal payments from the mortgage pool, whereas class 2 receives only interest payments.

111. Burden

Noninterest expense minus noninterest income for banks. Generally, noninterest expense is larger than the noninterest income.

112. Business Cycle

Repetitive cycles of recession and recovery. Some cyclical indicators for business cycle based upon National Bureau of Economic Research are as follows:

a.   Leading Indicators

Average hourly workweek, production workers, manufacturing.
Average weekly initial claims, state unemployment insurance.
Index of net business formation.
New orders, durable-goods industries.
Contracts and orders, plant and equipment.
Index of new building permits, private housing units.
Change in book value, manufacturing and trade inventories.
Index of industrial materials prices.
Index of stock prices, 500 common stocks.
Corporate profits after taxes (quarterly).
Index: ratio of price to unit labor cost, manufacturing.
Change in consumer installment debt.

b.   Roughly Coincident Indicators

GNP in current dollars.
GNP in 1958 dollars.
Index of industrial production.
Personal income.
Manufacturing and trade sales.
Sales of retail stores.
Employees on nonagricultural payrolls.
Unemployment rate, total.

c.   Lagging Indicators

Unemployment rate, persons unemployed 15 weeks or over.
Business expenditures, new plant and equipment.
Book value, manufacturing and trade inventories.

Index of labor cost per unit of output in manu-
facturing.

Commercial and industrial loans outstanding in
large commercial banks.

Banks rates on short-term business loans.

Source: US Department of Commerce.

113. Business Failure

It refers to a business that has terminated due to
the loss of creditors. However, it should be noted
that even an all-equity firm can fail.

114. Business Risk

Business risk is determined by the products the firm
sells and the production processes it uses. The effects
of business risk are seen ultimately in the variability
of earnings before interest and taxes (EBIT) over
time. In fact, one popular measure of a firm's busi-
ness risk is the standard deviation of EBIT. To con-
trol for the effects of a firm's size, another popular
method of gauging business risk is to find the stand-
ard deviation over time of the firm's operating re-
turn on assets, that is EBIT divided by Total assets.

A firm's business risk is affected by three major
influences: unit volume fluctuations, fixed costs (in-
cluding depreciation expenses), and the relationship
between the firm's selling price and its variable
costs.

115. Business Strategy Matrix

The business strategy matrix model views the firm
as a collection or portfolio of assets grouped into
strategic business units. This technique has been
disparaged by some as a cause of inappropriate
diversification among business units. It has led
firms to acquire or develop unrelated business
units that the firm's officers did not fully under-
stand. For example, the managerial expertise
needed to run a successful electronics firm may be

different from that needed to run a successful bak-
ing company. Nonetheless, this model can still pro-
vide some insights into capital budgeting strategy.

The business strategy matrix model emphasizes
market share and market growth rate. Based upon
these attributes, business units are deemed to be
Stars, Cash Cows, Question Marks, or Dogs. Cash
Cows typically are business units with leading mar-
ket positions in maturing industries; the firm can
direct the cash that these units generate to other
business units that need it, such as Stars and Ques-
tion Marks. The Stars (units with good market
positions in high growth markets) need funds to
expand and develop competitive advantages, as do
some Question Marks. Proper strategies to build
competitive advantages may turn Question Marks
into Stars; if these strategies are unsuccessful, the
firm may have to divest Question Marks. Dogs
have poor market positions in low-growth indus-
tries; unless a turnaround strategy is feasible, these
also are divestment or liquidation candidates.

If an organization uses the business strategy
matrix to assist in planning, management must be
sure to manage the firm's market share in a way
that maximizes shareholder wealth.

116. Butterfly Spread

A position that is created by taking a long position
in a call with strike price K_1, a long position in a
call with strike price K_3, and a short position in
two calls with strike price K_2, where $K_3 > K_2 > K_1$
and $K_2 = 0.5(K_1 + K_3)$. (A butterfly spread can
also be created with put options.)

117. Buying the Index

Purchasing the stocks in the Standard & Poor's
500 in the same proportion as the index to achieve
the same return. An index fund is a good ex-
ample.