D

1. Date of Payment

Date that dividend checks are mailed.

2. Date of Record

Date on which holders of record in a firm's stock ledger are designated as the recipients of either dividends or stock rights. Dividends will not be paid to those individuals whose notification of purchase is received by the company after this date.

3. Dates Convention

Treating cash flows as being received on exact dates – date 0, date 1, and so forth – as opposed to the end-of-year convention.

4. Day Count

A convention for quoting interest rates.

5. Day Order

A buy order or a sell order expiring at the close of the trading day.

6. Day Trade

A trade that is entered into and closed out in the same day.

7. Daylight Overdrafts

Bank payments from deposits held at a Federal Reserve Bank or correspondent bank in excess of actual collected balances during a day.

8. Days in Receivables

Average collection period. It measures the average amount of time required to collect an account receivable. Suppose in one company, 80 percent of its customers take the discounts and pay on day 20; the rest pay on day 60. The average collection period is 28 days (0.8×20 days $+ 0.2 \times 60$ days). It is also refers to days' sales outstanding.

9. Days Sales Outstanding

Average collection period.

10. Days' Receivables

[See **Average collection period**]

11. De Facto

Existing in actual fact although not by official recognition.

12. De Novo Branch

A newly opened branch.

13. Dealer Market

A market where traders specializing in particular commodities buy and sell assets for their own account. Most debt securities are traded in dealer markets. The many bond dealers communicate with one another by telecommunication equipment-wires, computers, and telephones. Investors get in touch with dealers when they want to buy or sell, and can negotiate a deal. Some stocks are traded in the dealer market. The OTC market is an example.

14. Dealer Reserve

An account established by a bank and dealer used to assign the interest that accrues to dealers as they sell loans to a bank.

15. Debenture

A debenture is an unsecured bond, or a bond that pledges no specific assets as security or collateral. In case of default, debenture holders are treated as general creditors of the firm. The riskiest type of bond is a **subordinated debenture**. [See also **Subordinated debenture**]

16. Debit Card

A plastic card that, when used, immediately reduces the balance in a customer's transactions deposit.

17. Debt

Loan agreement that is a liability of the firm. An obligation to repay a specified amount at a particular time.

18. Debt Capacity

Ability to borrow. The amount a firm can borrow up to the point where the firm value no longer increases. A firm's maximum debt capacity is defined as the point where the advantage derived from an incremental addition of debt to the firm's capital structure is offset by the cost incurred.

19. Debt Displacement

The amount of borrowing that leasing displaces. Firms that do a lot of leasing will be forced to cut back on borrowing.

20. Debt Ratio

Total debt divided by total assets. This ratio is used to determine a firm's capital structure.

21. Debt Service

Interest payments plus repayments of principal to creditors, that is, retirement of debt.

22. Debtor-in-Possession Financing

A loan made to a firm which has filed for Chapter 11 bankruptcy protection.

23. Debt-to-Assets Ratio

[See **Capital structure ratios**]

24. Debt-to-Equity Ratio

[See **Capital structure ratios**]

25. Decision Trees

A graphical representation of alternative sequential decisions and the possible outcomes of those decisions. Decision tree can be used to analyze capital budgeting under uncertainty. It can also be used to analyze the option valuation. [See also **Binomial model**]

26. Declaration Date

Date on which the board of directors passes a resolution to pay a dividend of a specified amount to all qualified holders of record on a specified date.

27. Dedicated Capital

Total par value (number of shares issued multiplied by the par value of each share). Also called dedicated value.

28. Dedication Strategy

Cash flow matching on a multi-period basis is referred to as a dedication strategy. In this case, the manager selects either zero-coupon or coupon bonds that provide total cash flows in each period that match a series of obligations. The advantage of dedication is that it is a once-and-for-all approach to eliminating interest rate risk. Once the

cash flows are matched, there is no need for rebalancing. The dedicated portfolio provides the cash necessary to pay the firm's liabilities regardless of the eventual path of interest rates.

29. Deed of Trust

Indenture is sometime referred to as deed of trust. [See also **Indenture**]

30. Deep-Discount Bond

A bond issued with a very low coupon or no coupon and selling at a price far below par value. When the bond has no coupon, it is also called a pure-discount or original-issue-discount bond.

31. Defalcation

The misappropriation of funds or property by an individual.

32. Default

The failure to make obligated interest and principal payments on a loan.

33. Default Correlation

Default correlation is a measurement of the degree to which default of one asset makes more or less likely the default of another asset. One can think of default correlation as being jointly due to (1) a macroeconomic effect which tends to tie all industries into the common economic cycle, (2) a sector-specific effect, and (3) a company-specific effect.

34. Default Premium

A differential in promised yield that compensates the investor for the risk inherent in purchasing a corporate bond that entails some risk of default.

35. Default Probability (DP)

The likelihood that an obligor or counterparty will encounter credit distress within a given time period. "Credit distress" usually leads to either an omitted delayed payment or distressed exchange which would impair the value to senior unsecured debt holders. Note that this leaves open the possibilities that:

(i) Subordinated debt might default without impairing senior debt value, and
(ii) Transfers and clearing might continue even with a senior debt impairment.

This probability can be either marginal default probability (MDP) or cumulative default probability (CDP). The MDP refers the probability that a borrower will default in any given year. The CDP refers the probability that a borrower will default over a specified multiyear period.

36. Default Probability Density

Measures the unconditional probability of default in a future short period of time. As the asset value of a firm increases, the firm is more likely to remain solvent, the default probability drops.

37. Default Risk

The chance that interest or principal will not be paid on the due date and in the promised amount under the loan contract. [See also **Credit risk**]

38. Default Swap

A contract in which the swap buyer pays a regular premium; in exchange, if a default in a specified bond occurs, the swap seller pays the buyer the loss due to the default.

39. Defeasance

A debt-restructuring tool that enables a firm to remove debt from its balance sheet by establishing

an irrevocable trust that will generate future cash flows sufficient to service the decreased debt.

40. Deferred Annuities

Tax-advantaged life insurance product. Deferred annuities offer deferral of taxes with the option of withdrawing one's funds in the form of a life annuity.

41. Deferred Availability Credit Items

Checks received for collection for which a bank has not provided credit to the depositor.

42. Deferred Call

A provision that prohibits the company from calling the bond before a certain date. During this period the bond is said to be call protected.

43. Deferred Down Rebate Option

A deferred rebate option for which the current stock price is above the rebate barrier. The payoff to this claim does not depend upon a strike price. The payoff will be done as long as the barrier has been hit.

44. Deferred Nominal Life Annuity

A monthly fixed-dollar payment beginning at retirement age. It is nominal because the payment is fixed in dollar amount at any particular time, up till and including retirement.

45. Deferred Payment Option

An option where the price paid is deferred until the end of the option's life.

46. Deferred Rebate Option

A claim that pays $1 at expiration if the price of the underlying asset has reached a barrier prior to expiration. If a contract that pays $1 at the time of a barrier is reached, it is called rebate option.

Therefore, the deferred rebate option is similar to rebate option.

47. Deferred Swap

A swap with terms specified today, but for which swap payments begin at a later date than for an ordinary swap.

48. Deferred Taxes

It is a noncash expense item. It results from differences between accounting income and true taxable income.

49. Deferred Up Rebate Option

A deferred rebate option for which the current stock price is below the rebate barrier. The payoff to this claim does not depend upon a strike price. The payoff will be done as long as the barrier has been hit.

50. Deferred-Strike Options

Deferred-strike options are also called shout options. As the phrase ''deferred-strike'' implies, a shout option is an option whose strike price can be specified as an underlying asset price at any time before the maturity of the option. The level of the strike is ultimately set at a specific relationship to the spot, for example, 6 percent or 4 percent below the spot, or 4 percent or 6 percent above, during a period of time normally starting on the trade date and ending on a date agreed upon at the trade time. After the strike is specified according to the terms in the contract or after the shouting time, the shout option becomes a vanilla option until the maturity of the option.

Shout options possess characteristics of American options. Since optimal timing or the ''shouting'' time is uncertain, there is no straightforward way to price shout options. However, they can be priced using either the binomial tree method or some analytical approximations.

51. Deficit

The amount by which a sum of money is less than the required amount; an excess of liabilities over assets, of losses over profits, or of expenditure over time.

52. Defined Benefit Plans

Pension plans in which retirement benefits are set according to a fixed formula. This plan promises in advance to pay employees a special level of benefit. A major question in the management and regulation of this kind of plan is whether an employer's contribution to the fund is sufficient to meet future pension liability.

53. Defined Contribution Plans

Pension plans in which the employer is committed to making contributions according to a fixed formula. However, benefits paid during retirement are not promised in advance. Instead they depend on contributions and earnings accumulated over time.

54. Degree of Combined Leverage (DCL)

A firm's degree of combined leverage (DCL) is the percentage change in earnings per share (EPS) that results from a 1 percent change in sales volume as:

$$DCL = \frac{\text{Percentage change in EPS}}{\text{Percentage change in sales}}.$$

The relationship between the degrees of operating and financial leverage and the degree of combined leverage is a multiplicative one. DFL times degree of operating leverage (DOL) results in:

$$\frac{\text{Percentage change in EPS}}{\text{Percentage change in EBIT}}$$
$$\times \frac{\text{Percentage change in EBIT}}{\text{Percentage change in sales}}$$
$$= \frac{\text{Percentage change in EPS}}{\text{Percentage change in sales}}.$$

Thus, a firm's degree of combined leverage is simply the product of its degree of operating leverage

and its degree of financial leverage. The DCL represents the impact on earnings per share of the combined effects of operating leverage and financial leverage if profit margins remain constant.

Like the degree of operating leverage and the degree of financial leverage, the DCL is not constant, as the firm's sales rise and fall over time. We know DOL declines as sales increase and DFL declines as EBIT rises. Thus, a firm's degree of combined leverage will fall as its sales and EBIT increase, as long as the firm's margin, fixed operating costs and financial costs remain constant.

The degree of combined leverage uses a firm's operating leverage and financial leverage and the assumption of constant margins to estimate a relationship between changes in sales and changes in earnings. [See also **Appendix B**]

55. Degree of Financial Leverage (DFL)

A firm's financial risk reflects its interest expense, or in financial jargon, its financial leverage. A quick way to determine a firm's exposure to financial risk is to compute its degree of financial leverage. The degree of financial leverage (DFL) measures the sensitivity of EPS to changes in EBIT as:

$$DFL = \frac{\text{Percentage change in EPS}}{\text{Percentage change in EBIT}},$$

This definition clearly suggests that DFL represents the percentage change in earnings per share due to a 1 percent change in earnings before interest and taxes.

There is a more straightforward method to compute a firm's degree of financial leverage that avoids handling percentage changes in variables. This formula is given as:

$$DFL = \frac{\text{EBIT}}{\text{EBIT} - \text{I}} = \frac{\text{EBIT}}{\text{EBT}}.$$

DFL equals the firm's earnings before interest and taxes (EBIT) divided by EBIT minus interest expense (I), or earnings before taxes (EBT).

DFL changes with the level of EBIT for much the same reason that **DOL** changes with sales volume. [See also **Degree of operating leverage**] When EBIT is about the same as the firm's interest expense, EPS is small. A slight change in EBIT can therefore lead to a large percentage change in EPS, resulting in a large DFL. If the firm's interest expense does not change while EBIT continues to grow, the percentage increase in EPS becomes smaller and smaller, resulting in lower values for the firm's degree of financial leverage. [See also **Appendix B**]

56. Degree of Operating Leverage (DOL)

A quick way to approximate a firm's exposure to business risk is to compute its degree of operating leverage. The degree of operating leverage (DOL) is a measure of the sensitivity of EBIT to a change in unit volume in sales, *assuming a constant price-variable cost margin*. Formally,

$$DOL = \frac{\text{Sales revenue} - \text{Variable costs}}{\text{Sales revenue} - \text{Variable costs} - \text{Fixed Costs}}$$

or, stated with variables, the formula for DOL can be written as:

$$\frac{Q(p-v)}{EBIT} = \frac{Q(p-v)}{Q(p-v) - F},$$

where Q = quantity of goods sold, p = price per unit, v = variable cost per unit, F = total fixed cost, and $EBIT$ = earnings before interest and taxes.

These formulas make computing the degree of operating leverage seem fairly straightforward, but these calculations assume constant margins. Any careful analysis of business risk should include analysis of competitive conditions and other influences on the firm's margins.

Why does a firm's DOL change as its level of unit sales varies? Recall the basic definition of DOL: it is the percentage change in EBIT that corresponds to a 1 percent change in unit sales. For lower levels of sales, EBIT is small. At the firm's **break-even point**, EBIT is zero. [See also

Break-even point] Therefore, any change in sales from the break-even point results in an infinite percentage change in EBIT and a DOL value of infinity. As sales volume grows, the level of EBIT also grows, but the resulting percentage change in EBIT becomes smaller and smaller, leading to reductions in the firm's degree of operating leverage. With constant margins and fixed costs, this implies that firm growth causes business risk to decline. [See also **Appendix B**]

57. Delinquent Account

An account that is past due because the account holder has not made the obligated payment on time.

58. Deliverable Instrument

The asset in a forward contract that will be delivered in the future at an agreed-upon price. A forward contract for foreign exchange currency is a deliverable instrument.

59. Delivery

The tender and receipt of an actual commodity or financial instrument, or cash in settlement of a futures contract.

60. Delivery Date

Specific day that a futures contract expires.

61. Delivery Point

A point designated by a futures exchange at which the financial instrument or commodity covered by futures contract may be delivered in fulfillment of such contract.

62. Delivery Price

Price agreed to (possibly some time in the past) in a forward contract.

63. Delta

The change in the price of a derivative due to a change in the price of the underlying asset. Based upon the call option formula defined in option pricing model [See also **Option pricing equation**]. The mathematic result can be defined as:

$$\frac{\partial C}{\partial S} = N(d_1) > 0.$$

64. Delta Neutral Portfolio

The value of the zero-delta portfolio is not affected by changes in the value of the asset on which the options are written.

65. Delta-Gamma Approximation

A formula using the delta and gamma to approximate the change in the derivative price due to a change in the price of the underlying asset.

66. Delta-Hedging

Hedging a derivative position using the underlying asset, with the amount of the underlying asset determined by the derivative's sensitivity (delta) to the price of the underlying asset.

67. Demand Deposit

Transactions account, payable on demand, that pays no interest to the depositor.

68. Demand Shock

An event that affects the demand for goods and services in the economy.

69. Denomination

Face value or principal of a bond.

70. Depository Transfer Check (DTC)

A depository transfer check (DTC) is an ordinary check restricted "for deposit only" at a designated bank. Hence, the designated collection bank deposits a DTC for the daily deposits into the firm's checking account and then submits the DTC to the collection system. Although the DTC is less expensive than a wire transfer, it is also slower.

71. Depreciation

A non-cash expense, such as the cost of plant or equipment, charge against earnings to write off the cost of an asset during its estimated useful life. It can use straight line method to do the depreciation. [See **Double-declining balance depreciation**]

72. Depreciation Tax Shield

The term T(Dep), the tax rate multiplied by the depreciation expense, is called the depreciation tax shield. It represents the tax savings the firm receives from its noncash depreciation expense. For example, with a 34 percent tax rate, a depreciation expense of $1,000 reduces a firm's tax bill by $340.

73. Derivative

A financial instrument whose value is determined by the specific features of the underlying asset or instrument. [See also **Primitive security**]

74. Derivative Asset/contingent Claim

Securities providing payoffs that depend on or are contingent on the values of other assets such as commodity prices, bond and stock prices, or market index values. Examples are futures and options.

75. Derivative Security

[See **Primitive security**]

76. Detachable Warrant

A warrant entitles the holder to buy a given number of shares of stock at a stipulated price. A detachable warrant is one that may be sold separately from the package it may have originally been issued with (usually a bond).

77. Development Projects

Development projects are attempts to develop projects and technologies that represent small advances of an already established knowledge base. These ''sure things'' will be low-risk, low-return investments in R&D.

78. DI System

The directional indicator system (DI system) is from a technical family known as momentum oscillators. Oscillators deal with price changes. The logic employed by the directional-indicator system is that any trending period can be characterized as having a significant excess of either positive or negative price movements. Periods when prices are quickly moving upwards will have more upwards price change than downward price change, and vice versa. It is this relative price change that the DI estimates.

79. Diagonal Spread

A position in two calls where both the strike prices and times to maturity are different. It can be regarded as a combination of bull (or bear) and calendar spread. (A diagonal spread can also be created with put options.)

80. Differential Equation

An equation relating a variable to its derivatives and one or more independent variables. The differential equation can be classified into deterministic and stochastic differential equation. Black and Scholes (1973) used stochastic differential equation to derive the option pricing model.

81. Diffusion Process

Generally, a continuous stochastic process in which uncertainty increases with time. Also used to describe the Brownian (random) part of an Itô process. [See also **Differential equation**]

82. Digital Option

Another name for binary option. [See also **Binary option**]

83. Dilution

Loss in existing shareholders' value. There are several kinds of dilution: (1) dilution of ownership, (2) dilution of market value, and (3) dilution of book value and earnings, as with warrants and convertible issues. Firms with significant amounts of warrants or convertible issues outstanding are required to report earnings on a ''fully diluted'' basis.

84. Direct Agency Costs

[See **Agency costs**]

85. Direct Lease

A lease under which a lessor buys equipment from a manufacturer and leases it to a lessee. In other words, it gives the lessee the use of an asset while the lessor retains title and ownership of the asset.

86. Direct Loan

Loan with terms negotiated directly between the lender and actual user of the funds.

87. Direct Quote

A direct quote states an exchange rate in terms of the amount of US dollars that equal one unit of foreign currency, such as $0.6786/DM. [See also **Indirect quote**]

88. Direct Search Market

Buyers and sellers seek each other direct and transact directly.

89. Dirty Price

The present value of a bond's future cash flows (this implicitly includes accrued interest). For instance, a 7 percent annual coupon bond trading at par would have a dirty price of $107 just prior to coupon payment. CreditMetrics estimates dirty prices since the coupon is paid in non-default states but assumed not paid in default. [See also **CreditMetrics model** and **Accrued interest**]

90. Disbursement Float

A decrease in book cash but no immediate change in bank cash, generated by checks written by the firm. [See also **Float**]

91. Discount Bonds

A bond that sells below par value is said to be selling at a *discount* and is called a discount bond.

The price of a discount bond will rise as it nears maturity if the market rate remains the same, since at maturity its price will equal its par value.

92. Discount Broker

A brokerage firm that offers a limited range of retail services and charges lower fees than full-service brokers.

93. Discount Factor

The term $1/(1 + r)^n$ is called a present value interest factor, $PVIF(r,n)$, or discount factor.

When the number of periods n and interest rate r are the same, the future value interest factor ($FVIF$) and PVIF terms are merely reciprocals of each other. That is,

$$PVIF = 1/FVIF \quad \text{and} \quad FVIF = 1/PVIF.$$

As it is the reciprocal of the compounding future value interest factor, the present value interest factor, $1/(1 + r)^n$, will diminish as either the interest rate or the number of years increases. Thus, using the same discount rate, cash flows in the far future are worth less to us than nearer cash flows. Over the same time frame, higher discount rates result in lower PVIFs, meaning future cash flows will be worth less in present value terms.

94. Discount Function

The discounted value of $1 as a function of the time until payment.

95. Discount Instrument

An instrument, such as a Treasury bill, that provides no coupons.

96. Discount on a Currency

The forward rate either will be at a discount or a premium to the spot rate. A currency is selling at a discount if it can be purchased more cheaply in the forward than in the spot market. Or, in other words, using indirect quotes, a dollar that is selling at a discount can buy fewer units of the foreign currency in the forward market than in the spot market.

97. Discount Payback Period Rule

An investment decision rule in which the cash flows are discounted at an interest rate and the payback rule is applied on these discounted cash flows. This method has taken time value of money into account. However, it still does not consider all potential cash flow.

98. Discount Rate

There are two possible meanings for this term as follows:

1. Occasionally, the Fed implements monetary policy by adjusting the discount rate, the interest

rate it charges on its loans to banks. This serves to encourage or discourage banks from borrowing from the Fed to raise loanable reserve. Changes in the discount rate also transmit signals regarding future Fed policy.

2. The interest rate that is used to find a present value often is called a discount rate.

99. Discount Rate for Discount Instrument

The annualized rate of return on a Treasury bill or similar works on 360-days, instead of 365-day year instrument expressed as a percentage of the final face value. It assumes a 360-day, instead of 365-day per year, for calculating this type of rate of return.

100. Discount Window

Interest rate charged by Federal Reserve banks lending to member institutions.

101. Discounted Cash-Flow Valuation Theory

It is the basic tool for determining the theoretical price of a corporate security. The price of a corporate security is equal to the present value of future benefits of ownership. For example, for common stock, these benefits include dividends received while the stock is owned plus capital gains earned during the ownership period.

102. Discounted Dividend Model (DDM)

A formula to estimate the intrinsic value of a firm by figuring the present value of all expected future dividends. [See also **Gordon model**]

103. Discounting

Discounting is the process of determining the present value, or the value as of today, of a future cash flow.

104. Discretionary Account

An account of a customer who gives a broker the authority to make buy and sell decisions on the customer's behalf.

105. Distressing Exchange

During a time of credit distress, debt holders may be effectively forced to accept securities in exchange for their debt claim; such securities being of a lower value than the nominal present value of their original claim. They may have a lower coupon, delayed sinking funds, and/or lengthened maturity. For historical estimation of default probabilities, this would count as a default event since it can significantly impair value.

106. Distribution

A type of dividend paid by a firm to its owners from sources other than current or accumulated retained earnings.

107. Diversifiable Risk

A risk that specifically affects a single asset or a small group of assets. [See also **Unsystematic risk**]

108. Diversification

Diversification occurs when we invest in several different assets rather than just a single one.

Financial theorists commonly assume that the goal of a business is to maximize shareholder wealth. Hence decisions should be evaluated on the basis of how they affect value and, more directly, how they affect the amount and uncertainty of the cash flow stream accruing to the owners.

One line of financial theory has sought to explain conglomerate mergers through the diversification effect. The basic argument follows from portfolio theory: joining together two less than perfectly correlated income streams reduces the

relative variability of the streams. However, it has been conversely argued that a perfect capital market allows no economic advantage from a purely conglomerate merger. That is, a merger cannot create diversification opportunities beyond those available to an individual investor before the merger.

109. Divestitures

In a divestiture, one firm sells a segment of its operations to another firm. No new corporate entity is created. The selling firm gives up the operational cash flows associated with the divested assets in exchange for a cash flow from the buyer. Arguably, a decision to divest a segment should be made in a capital budgeting framework.

Tax treatment of a divestiture handles the transaction as an ordinary sale with capital gains or losses recognized normally.

110. Dividend

A payment made to holders of a firm's common stock and/or preferred stock. Cash dividends are paid in cash while stock dividends are paid in stock.

111. Dividend Declaration Date

On the dividend declaration date, the directors of the firm may issue a statement declaring a regular dividend. The statement might be worded something like, "On January 2, 2005, the directors of this corporation met and declared quarterly dividends to be $0.75 per share payable to the holder of record on January 22; payment will be made on February 7, 2005." With this declaration, the dividend becomes a legally binding obligation to the corporation.

112. Dividend Growth Model

A model wherein dividends are assumed to be at a constant rate in perpetuity. [See also **Gorden model**]

113. Dividend Irrelevance

Miller and Modigliani (1961) were the first to present an argument for dividend irrelevance. Miller and Modigliani's theory that the value of the firm is independent of its dividend policy is similar to their analysis of the irrelevance of capital structure. The theory assumes a world without taxes or transaction costs. In addition, investors are assumed to be rational, with homogeneous expectations, and both corporate management and shareholders are assumed to know the same information about the firm.

114. Dividend Payout Ratio

It equals dividend per share divided by earnings per share. [See also **Retention rate**]

115. Dividend Policy

Dividend policy is the decision a firm makes to pay out earnings or retain them for reinvestment in the firm. If it pays out dividends, company policy must determine the amount to retain. Two questions drive a firm's dividend policy: Does dividend policy have an effect upon the firm's value? If so, will the firm try to achieve an optimal payout ratio by attaining an ideal dollar payment per share? These questions have sparked debate between practitioners and academicians for many years. Practitioners see an optimal level of dividend payout, whereas some academic factions have argued that dividend policy does not affect the value of the firm at all.

Still other groups of academics have argued that dividends are the *only* factor that determines firm value. This shows up in Gordon's constant dividend growth model for a share of common stock as:

$$P_0 = \frac{D_1}{r - g},$$

where P_0 = current stock price; D_1 = dividend payout in next period; r = cost of equity capital for the firm; and g = growth rate for the firm.

According to the Gordon model, if the firm increases its cash dividend, the price of its stock will increase. Remember, however, that any increase in the dividend is a reduction in retained earnings, which causes lower growth rate, *g*, for the firm. According to the model, a lower growth rate reduces the firm's stock price, so the optimal dividend policy must balance the effects of these two variables to maximize the stock price.

116. Dividend Yield

Dividends per share of common stock divided by market price per share.

117. Dividends Per Share

Amount of cash paid to shareholders expressed as dollar per share.

118. DMAC System

The dual moving-average crossover system (DMAC system) employs logic similar to the **MAPB system** by seeking to find when the short-term trend rises above or below the long-term trend. The MAPB represents the short-term trend by the daily price and the long-term trend by the moving average. The DMAC uses a short-term moving average and long-term moving average to represent the short-term and long-term trend. A change in the price trend is signaled when these two moving averages cross. Specifically, a buy signal is generated when the shorter moving average is greater than (above) the longer moving average, and a sell signal when the shorter moving average is less than (below) the longer moving average. The trader always maintains a long or short position in the futures market. [See also **MAPB system**]

119. Dollar-Weighted Return

The internal rate of return on an investment.

120. Dominance Principle

Under the efficient-frontier analysis, the assumption that an investor prefers returns and dislikes risks. For example, an individual is prepared to experience risk associated with the different return, he or she can obtain a higher expected return with two different return portfolios with the same risk. Thus, the higher return portfolio dominates the lower return portfolio and would be preferred. Similarly, if an individual was satisfied with a return, he would select the less risky portfolio.

121. DONCH System

The Donchian system (DONCH system) is part of a family of technical systems known as price channels. The system generates a buy signal any time the daily high price is outside (greater than) the highest price in the specified time interval. A sell signal is generated any time the daily low breaks outside (lower than) the lowest price in the same interval. The system always generates a signal for the trader to take a position, long or short, in the futures market.

122. Double Taxation

Tax law complicates the dividend decision by imposing the burden of double taxation. In effect, income that a firm pays to shareholders as dividends is taxed twice. A corporate income tax is levied on the corporation's profits, and shareholders then pay personal income taxes on the dividends they receive. This is one of the complexities of the US tax laws that affects dividend policy.

The investor has no control over corporate tax effects. It is up to the corporate managers to reduce or defer tax payments as much as possible. However, the investor can influence the amount of personal taxes due on any dividend earnings. Investors can reduce or defer taxes by buying low-dividend,

high-growth stocks. Or, if they are tax exempt, investors can buy dividend-paying stocks.

Personal income taxes may affect an investor's preference for dividends or capital gains. When the tax rate on capital gains is substantially lower than the tax rate on personal income, then shareholders should prefer capital gains to dividends. This increases the firm's focus on retained earnings as equity financing. Investors still can realize home-made dividends through capital gains from sales of stock.

Different investors will have different preferences between dividends and capital gains. For example, average investors may prefer dividends because of the need for additional income, while wealthy investors may prefer capital gains because they currently do not need the income. Some large, tax-exempt institutions, such as pension funds, pay no taxes on their investment income, so they may be indifferent between dividends or capital gains. Other tax-exempt institutions, such as foundations and endowments, may favor current income to help meet budget needs.

Investors can defer receiving capital gains by holding stock; gains are received and become taxable only when stock is sold at a profit. Dividends offer less flexibility. Once the firm pays a dividend, the investor must pay taxes on this income. Therefore, the ability to defer taxes on capital gains may bias the investor against cash dividend payments.

123. Double-Declining Balance Depreciation

One of the accelerated depreciation methods. To use the double-declining-balance (DDB) method we first need to find the annual depreciation rate, which is calculated as:

$$\text{Annual depreciation rate} = \frac{1}{N},$$

where N is the number of years used to calculate straight line depreciation method. The annual straight-line rate of depreciation is $1/N$ percent per year; for DDB we need only multiply this

amount by 2. Using this rate, the depreciation over five years for an asset with an initial value of $6,000 is calculated as:

		Depreciation
Year 1 $6,000 (2/5)	=	$2,400
Year 2 ($6,000 – $2,4000)(2/5)	=	1,440
Year 3 ($6,000 – $2,400 – $1,440)(2/5)	=	864
Year 4 ($6,000 – $2,400 – $1,440 – $864)(2/5)	=	518
Year 5 ($6,000 – $2,400 – $1,440 – $864 – $518)(2/5)	=	178 (311)
	TOTAL	$5,400

The maximum depreciation that can be taken is the value of cost minus salvage of $5,400. Thus, $178 of depreciation in year 5 exhausts the depreciation allowed under DDB, even though $311 is available.

Comparison between Straight-line and Double-Declining-balance method

Year	Straight-line	DDB
1	$1,080	$2,400
2	1,080	1,440
3	1,080	864
4	1,080	518
5	1,080	178

124. Doubling Option

A sinking fund provision that may allow repurchase of twice the required number of bonds at the sinking fund call price. This is one aspect of sinking fund call different from conventional bond call.

125. Dow Jones Industrial Average Index (DJIA)

The DJIA is an arithmetic average of the stock prices that make up the index. The DJIA originally assumed a single share of each stock in the index,

and the total of the stock prices was divided by the number of stocks that made up the index:

$$DJIA_t = \frac{\dfrac{\sum_{i-1}^{30} P_{ti}}{30}}{\dfrac{\sum_{i=1}^{30} P_{0i}}{30}}.$$

Today, the index is adjusted for stock splits and the issuance of stock dividends:

$$DJIA_t = \frac{\sum_{i=1}^{30} \dfrac{P_{ti}}{AD_t}}{\sum_{i=1}^{30} P_{0i}},$$

where P_{it} = the closing price of stock i on day t, and AD_t = the adjusted divisor on day t. This index is similar to the simple price index except for the stock splits adjusted overtime. The adjustment process is illustrated as:

Adjustment of DJIA divisor to allow for a stock split

Before Split Stock	Price	After 2-for-1 Stock Split by Stock A Price
A	60	30
B	30	30
C	20	20
D	10	10
Sum	120	90

$$\text{Average before split} = \frac{120}{4} = 30$$

$$\text{Adjusted divisor} = \frac{sum\ of\ prices\ after\ the\ split}{Average\ before\ split}$$
$$= \frac{90}{30} = 3$$

$$\text{Average after split} = \frac{90}{3} = 30$$

Before-split divisor = 4 After-split divisor = 3

Alternatively, the average after split can be calculated as:

$$\text{Average} = \frac{30 \times 2 + 30 + 20 + 10}{4} = 30.$$

This average is identical to that obtained by using the adjusted-divisor approach.

As the Table shows, the adjustment process is designed to keep the index value the same as it would have been if the split had not occurred. Similar adjustments have been made when it has been found necessary to replace one of the component stocks with the stock of another company, thus preserving the consistency and comparability of index values at different points in time.

126. Dow Theory

One of the tools used by technical analysts to measure supply and demand and forecast security prices is the Dow theory. The Dow theory is used to indicate reversals and trends in the market as a whole or in individual securities. According to the theory, there are three movements going on in the markets at all times. These movements are (1) daily fluctuations (the narrow movement from day to day), (2) secondary movements (short-run movements over two weeks to a month or more), and (3) primary trends, major movements covering at least four years in duration. The theory asserts that daily fluctuations are meaningless. However, daily asset prices or the market average must be plotted in order to outline the primary and secondary trends. In plotting the asset prices, the Dow theorists search for price patterns indicating market tops and bottoms.

Technical analysts use three basic types of charts: (1) line charts, (2) bar charts, and (3) point-and-figure charts. Bar charts have vertical bars representing each day's price movement. Each bar spans the distance from the day's highest price to the day's lowest price with a small cross on the bar marking the closing price. Lines are used to connect successive day's prices. Patterns indicating market tops or bottoms are then searched for in

these line charts by technical analysis. *The Wall Street Journal* uses the bar charts to show daily fluctuations in the Dow Jones Average.

Point-and-figure charts are more complex than line or bar charts. These charts draw the percentage change directly. They are not only used to detect reversals in a trend but are also employed to set actual price forecasts.

The construction of a point-and-figure chart varies with the price level of the stock being charted. Only significant changes are posted to a point-and-figure chart. As a result there are one-point, two-point, three-point, and five-point point-and-figure charts.

To set the price target (forecasted stock price) which a stock is expected to attain, point-and-figure chartists begin by finding a congestion area. A congestion area is a horizontal band created by a series of reversals around a given price level. Congestion areas are supposed to result when supply and demand are equal. A breakout is said to have occurred when a column of price increase rises above the top of a congestion area. Breakout refers to a price rise or fall in which the price rises above or falls below the horizontal band which contained the congestion area. A penetration of the top of a congestion area is a signal for continued price rise. Penetration of the bottom of a congestion area by a column of price declines is a bearish signal.

To establish estimates of the new prices that a security should attain, point-and-figure chartists measure the horizontal width of a congestion area as they watch for a breakout. When a breakout occurs, the chartist projects the horizontal count upward or downward in the same direction as the breakout to establish the new price target.

127. Down-and-In Option

An option that comes into existence when the price of the underlying asset declines to a prespecified level. This option can be classified into down-and-in call and down-and-in put. For example, down-and-in call is a regular call that comes in to existence only if the asset price reaches the barrier level.

128. Down-and-Out Option

An option that ceases to exist when the price of the underlying asset declines to a prespecified level. This option can be classified into down-and-out call and down-and-out put. For example, down-and-out call is a regular call that ceases to exist if the asset price reaches a certain barrier level.

129. Downgrade Trigger

A clause in the contract that states that the contract will be terminated with a cash settlement if the credit rating of one side falls below a certain level.

130. Draft

A written order requesting one party to make payment to another party at a specified point in time.

131. Drift

The expected change per unit time in an asset price.

132. Drift Rate

The average increase per unit of time in a stochastic variable. The drift can be undetectable amid all the up and down movements due to the random terms. [See also **Stochastic process**]

133. Du Pont Analysis

Breaking return on equity into component parts is called Du Pont analysis. [See also **Profitability ratios**]

134. Du Pont System of Financial Control

Highlights the fact that return on asset (ROA) can be expressed in terms of the profit margin and asset turnover. [See also **Profitability ratios**]

135. Dual Banking System

Banking system in the US in which groups trying to obtain a charter to open a bank can apply to the

state banking department or the office of the Comptroller of the Currency-the national banking agency. Therefore, charters of US banks can be classified into state bank charter and national charter bank.

136. Dual Funds

Funds in which income and capital shares on a portfolio of stocks are sold separately.

137. Dumbbell Strategy

Dumbbell strategy are characterized by the inclusion of some proportion of short and intermediate term bonds that provide a liquidity buffer to protect a substantial investment in long-term security. The dumbbell portfolio divides its funds between two components. The shortest maturity is usually less than three years, and the longest maturities are more than ten years. The portfolio is weighted at both ends at the maturity spectrum. The logic and mechanics of the dumbbell strategy are straightforward: the short-term treasury notes provide the least risk and highest liquidity, while long-term bonds provide the highest return. The best risk/return portfolio combination may very well be a combination of these extremes. Assuming an upward-sloping yield curve, no intermediate bonds will be held since they have (1) less return than the longest-maturity bonds, and (2) less liquidity and safety than the shortest T-note.

138. Duration

The weighted average time of an asset's cash flows. The weights are determined by present value factors. The formula can be defined as:

$$D = \sum_{t=1}^{T} \frac{(t)(PV_t)}{\sum_{t=1}^{T} PV_t}, \qquad (A)$$

where D is the duration of the bond; t is specific point in time; T is the number of years to maturity;

PV_t is the present value of the cash flow received at time t. PV_t is further defined as follows:

$$PV_t = \frac{C_t}{(1+r)^t}, \qquad (B)$$

where r is the interest rate, and C_t is the cash payment in period t ($t = 1, 2, 3 \ldots, T$).

If coupon is zero, then duration is equal to maturity, therefore, the duration of zero-coupon bond is equal to maturity.

See table to calculate duration using equations (A) and (B).

Calculation of duration for two bonds

		Table A: 6% Coupon Bond		
Year	Payment	Present value (r = 9.91%)	Proportion of present value	Proportion in year X
1	60	54.59	0.0586	0.0586
2	1,060	877.47	0.9414	1.8828
		932.06	1.0000	1.9414

		Table B: 12% Coupon Bond		
Year	Payment	Present value (r = 9.82%)	Proportion of present value	Proportion in year X
1	120	109.27	0.1053	0.1053
2	1,120	928.66	0.8947	1.7894
		1,037.93	1.0000	1.8947

For the 6 percent coupon bond, we find the duration in terms of equation (A) as:

Duration = (.0586)(1) + (.9414)(2) = 1.9414 years.

Similarly, the duration of the 12 percent coupon bond in table B is 1.8947 years. The duration of 6 percent coupon bond is longer then that of 12 percent coupon bond where the maturity for two coupon bonds is equal. In sum, duration refers to the weighted average life of the bond, which also provides a measure of bond's sensitivity of interest rate changes. Two common duration measures are modified and Macaulay duration. The duration discussed here is the Macaulay duration which the yield curve is assumed to be flat.

139. Duration Gap (DUR$_{GAP}$)

The weighted duration of assets (DUR_A) minus the product of the weighted duration of liabilities (DUR_L) and the ratio of total liabilities to total assets (W_L). The formula can be defined as:

$$DUR_{GAP} = DUR_A - (W_L)(DUR_L),$$

where W_L = total liability / total assets.

140. Duration Matching

A procedure for matching the durations of assets and liabilities in a financial institution.

141. Duration Measure

Duration measure is simply a weighted-average maturity, where the weights are stated in present value terms. In the same format as the weighted-average term to maturity, duration is:

$$D = \frac{PVCF_1}{PVTCF}(1) + \frac{PVCF_2}{PVTCF}(2) + \ldots + \frac{PVCF_n}{PVTCF}(n),$$

where $PVCF_t$ = the present value of the cash flow in year t discounted at current yield to maturity; t = the year when cash flow is received; n = maturity; and $PVTCF$ = the present value of total cash flow from the bond discounted at current yield to maturity

142. Dyl Model

Dyl (1975) introduced short selling with margin requirements by creating a new set of risky securities, the ones sold short, which are negatively correlated with the existing set of risky securities. These new securities greatly enhance the diversification effect when they are placed in portfolios. The Dyl model affects the efficient frontier in two ways: (1) If the investor were to combine in equal weight any long position in a security or portfolio with a short position in a security or portfolio, the resulting portfolio would yield zero return and zero variance. (2) Any combination of un-equal weighted long or short positions would yield portfolios with higher returns and lower risk levels.

143. Dynamic Financial Ratio Analysis

In basic finance and accounting courses, industry-average ratios are usually used as a benchmark with which to compare a specific company's ratio at a specific point of time. This is a form of static ratio analysis because the focus is on one point in time. But making static comparisons between ratios does not take full advantage of all the information the ratios provide. Dynamic analysis helps us better compare the ratios between either two firms or between the ratio of individual firm and that of industry average. In addition, this kind of relationship can be used to forecast the future ratios.

The financial manager compares the firm's ratios against same norm, such as the industry's average ratios. Let's take the debt ratio (DR) as an example. By regressing the current year's debt ratio against the industry average of debt ratio, the manager can better analyze the dynamic nature of ratios and determine the adjustment process the firm should undertake to get back on target. If the firm's DR is off target, the manager would attempt to adjust it to meet the mark. Lev (1969) developed the partial adjustment model to define the dynamic financial ratio adjustment process. The equation is:

$$Y_{j,t} = Y_{j,t-1} + \delta_j\left(Y_{j,t}^* - Y_{j,t-1}\right), \qquad (A)$$

where $Y_{j,t}^*$ = desirable target ratio for firm j; $Y_{j,t-1}$ = previous period's ratio for firm j; δ_j = partial adjustment coefficient for firm j reflecting technological and institutional constraints; and $Y_{j,t}$ = current year's ratio for the firm.

The partial adjustment model takes the difference between the firm's debt ratio and the target ratio (industry average) and adjusts it by δ. The difference can be only partially adjusted because deviations caused by financial and capacity constraints cannot be completely removed in the short

run. Therefore, the coefficient of adjustment reflects the fact that there are limitations to the periodic adjustment of ratios.

144. Dynamic Hedging

A procedure for hedging an option position by periodically changing the position held in the underlying assets. The objective is usually to maintain a delta-neutral position. It can be quite expensive because of the transaction costs involved. Dynamic hedging sometimes referred to as dynamic options replication. [See also **Static option replication**]

145. Dynamic Option Replication

Option replication can be classified into either static or dynamic replication. Dynamic replication requires the position in the hedging assets to be rebalanced frequently and can be quite expensive because of the transaction costs involved. [See also **Static option replication** and **Delta hedging**]