

Financial Ratios and Measures

Corporate finance and valuation are filled with ratios and measures that are often not only obscure to outsiders but defined in many different (and contradictory) ways by practitioners and academics. The table below is my attempt to provide some underlying rationale for why the measure is used in the first place, the best way to define each measure and some comments on their use or misuse.

Variables	Definition	What it tries to measure	Comments
Accounts Payable/Sales	Accounts Payable/ Sales (See also days payable)	Use of supplier credit to reduce working capital needs (and to increase cash flows).	There is a hidden cost. By using supplier credit, you may deny yourself the discounts that can be gained from early payments.
Accounts Receivable/Sales	Accounts Receivable/ Sales	Ease with which you grant credit to customers buying your products and services.	A focus on increasing revenues can lead companies to be too generous in giving credit. While this may make the revenue and earnings numbers look good, it is not good for cash flows. In fact, one sign that a company is playing this short term gain is a surge in accounts receivable.
Alpha	Difference between the actual returns earned on a traded investment (stock, bond, real asset) and the return you would have expected to make on that investment, given its risk. Alpha = Actual Return - Expected return given risk In the specific case of a regression of stock returns against market returns for computing	Measures whether you are beating the market , after adjusting for risk. In practice, though, it can be affected by what risk and return model you use to compute the expected return.	When portfolio managers talk about seeking alpha, they are talking about beating the market. However, what may look like beating the market may just turn out to be a flaw in the risk and return model that you used. (With the CAPM, for instance, small cap and low PE stocks consistently have delivered positive alphas, perhaps reflecting the fact that the model

	<p>the CAPM beta, it is measured as follows: (Jensen's) Alpha = Intercept – Risk free Rate (1 - Beta) If the regression is run using excess returns on both the stock and the market, the intercept from the regression is the Jensen's alpha.</p>		<p>understates the expected returns for these groups) or sheer luck (In any given year, roughly half of all active investors should beat the market).</p>
Amortization	See Depreciation & Amortization		
Annual Returns	<p>Returns from both price appreciation and dividends or cash flow generated by an investment during a year. For stocks, it is usually defined as: (Price at end of year - Price at start + Dividends during year) / Price at start of year</p>	<p>A percentage return during the course of a period that can be then compared to what you would have made on other investments.</p>	<p>The annual return is always defined in terms of what you invested at the start of the period, though there are those who use the average price during the year. The latter makes sense only if you make the investments evenly over the course of the year. It cannot be less than -100% for most assets (you cannot lose more than what you invested) but can be more than -100% if you have unlimited liability. It is unbounded on the plus side, making the distribution of returns decidedly one-sided (or asymmetric). Returns can therefore never be normally distributed, though taking the natural log of returns (the natural log of zero is minus infinity) may give you a shot.</p>
Asset Beta	See un-levered beta (corrected for cash)		
Beta (Asset)	See un-levered beta (corrected for cash)		
Beta (CAPM)	It is usually measured	Risk in an investment	Regression betas have

	using a regression of stock returns against returns on a market index; the slope of the line is the beta. The number can change depending on the time period examined, the market index used and whether you break the returns down into daily, weekly or monthly intervals.	that cannot be diversified away in a portfolio (Also called market risk or systematic risk).	two big problems: (a) Measured right, they give you a fairly imprecise estimate of the true beta of a company; the standard error in the estimate is very large. (b) They are backward looking. You get the beta for a company for the last 2 or last 5 years. If your company has changed its business mix or debt ratio over this time period, the regression beta will not be a good measure of the predicted beta. For a way around this problem, you can try estimating bottom-up betas. (See bottom-up beta)
Beta (Market)	See Beta (CAPM)		
Beta (Regression)	See Beta (CAPM)		
Beta (Total)	See Total Beta		
Book Debt Ratio	See Debt Ratio (Book Value)		
Book Value of Capital	Book Value of Debt + Book Value of Equity (See book value of invested capital)	A measure of the total capital that has been invested in the existing assets of the firm. It is what allows the firm to generate the income that it does.	This is one of the few places in finance where we use book value, not so much because we trust accountants but because we want to measure what the firm has invested in its existing projects. (Market value includes growth potential and is thus inappropriate) There is a cost we incur. Every accounting action and decision (from depreciation methods to restructuring and one-time charges) as well as market actions (such as stock buybacks) can have significant implications for the book value. Large

			<p>restructuring charges and stock buybacks can reduce book capital significantly.</p> <p>Finally, acquisitions pose a challenge because the premium paid on the acquisition (classified as goodwill) may be for the growth opportunities for the target firm (on which you have no chance of earning money now). That is why many analysts net goodwill out of book capital.</p>
Book Value of Equity	Shareholder's equity on balance sheet; includes original paid-in capital and accumulated retained earnings since inception. Does not include preferred stock.	A measure of the equity invested in the existing assets of the firm. It is what allows the firm to generate the equity earnings that it does.	The book value of equity, like the book value of capital, is heavily influenced by accounting choices and stock buybacks or dividends. When companies pay large special dividends or buy back stock, the book equity will decrease. In some cases, years of repeated losses can make the book value of equity negative.
Book Value of Invested Capital	Book Value of Debt + Book Value of Equity - Cash & Marketable Securities (See book value of capital)	Invested capital measures the capital invested in the operating assets of the firm.	Netting out cash allows us to be consistent when we use the book value of capital in the denominator to estimate the return on capital. The numerator for this calculation is after-tax operating income and the denominator should therefore be only the book value of operating assets (invested capital).
Bottom-Up Beta	Weighted average Beta of the business or businesses a firm is in, adjusted for its debt to equity ratio. The betas for individual businesses	The beta for the company, looking forward, based upon its business mix and financial leverage.	There are two keys to estimating bottom-up betas. The first is defining the business or businesses a firm is in broadly enough to be

	are usually estimated by averaging the betas of firms in each of these businesses and correcting for the debt to equity ratio of these firms.		able to get at least 10 and preferably more firms that operate in that business. The second is obtaining regression betas for each of these firms. Bottom up betas are generally better than using one regression beta because (a) they have less standard error; the average of 20 regressions betas will be more precise than any one regression beta and (b) they can reflect the current or even expected future business mix of a firm.
Cap Ex/ Depreciation	Estimated by dividing the capital expenditures by depreciation. For the sector, we estimate the ratio by dividing the cumulated capital expenditures for the sector by the cumulated depreciation and amortization.		
Capital (Book Value)	This is the book value of debt plus the book value of common equity, as reported on the balance sheet.		
Capital Expenditures	Capital Spending + Investments in R&D, exploration or human capital development + Acquisitions	Investment intended to create benefits over many years; a factory built by a manufacturing firm, for instance.	The accounting measure of cap ex (usually found in the statement of cash flows under investing activities) is far too narrow to measure investment in long term assets. To get a more sensible measure, we therefore convert expenses like R&D and exploration costs (treated as operating expenses by most firms) into capital

			expenditures. (See R&D (capitalized) for more details) and acquisitions, including those funded with stock. After all, if we want to count the growth from the latter, we have to count the cost of generating that growth.
Cash	Cash and Marketable Securities reported in the balance sheet.	Cash and close-to-cash investments held by a firm for a variety of motives: precautionary (as a cushion against bad events), speculative (to use on new investments) and operational (to meet the operating needs of the company).	At most firms, cash and marketable securities are invested in short term, close to riskless investments. As a consequence, they earn fairly low returns. However, since that is what you would require them to earn cash usually is a neutral investment; it does not hurt or help anyone. Investors, though, may sometimes discount cash in the hands of some managers, since they fear that it will be wasted on a bad investment.
Correlation with the market	This is the correlation of stock returns with the market index, using the same time period as the beta estimation (see beta) . Bounded between -1 and +1.	Measures how closely a stock moves with the market.	The beta for a stock can actually be written as: $\text{Beta} = \frac{\text{Correlation of stock with market} * \text{Standard deviation of stock}}{\text{Standard deviation of the market}}$ As a consequence, holding all else constant, the beta for a stock will rise as its correlation with the market rises. If we do not hold the standard deviation of the stock fixed, though, it is entirely possible (and fairly common) for a stock to have a low correlation and a high beta (if a stock has a very

			high standard deviation) or a high correlation and a low beta (if the stock has a low standard deviation).
Cost of Capital	<p>The weighted average of the cost of equity and after-tax cost of debt, weighted by the market values of equity and debt:</p> $\text{Cost of Capital} = \text{Cost of Equity} \left(\frac{E}{D+E} \right) + \text{After-tax Cost of Debt} \left(\frac{D}{D+E} \right)$	Measures the current long-term cost of funding the firm.	<p>The cost of capital is a market-driven number. That is why we use market value weights (that is what you would pay to buy equity and debt in the firm today and the current costs of debt and equity are based upon the riskfree rate today and the expected risk premiums today. When doing valuation or corporate finance, you should leave open the possibility that the inputs into cost of capital (costs of debt and equity, weights) can change over time, leading your cost of capital to change. If you have hybrids (such as convertible bonds), you should try to break them down into debt and equity components and put them into their respective piles. For what to do with preferred stock, see Preferred stock.</p>
Cost of Debt (After-tax)	<p>After-tax cost of debt = Pre-tax Cost of debt (1 —marginal tax rate) (See pre-tax cot of debt and marginal tax rate)</p>	Interest is tax deductible and it saves you taxes on your last dollars of income. Hence, we compute the tax benefit using the marginal tax rate.	<p>The marginal tax rate will almost never be in the financial statements of a firm. Instead, look at the tax code at what firms have to pay as a tax rate. Note, though, that the tax benefits of debt are available only to money making companies. If a money losing company is computing its after-tax cost of debt, the marginal</p>

			tax rate for the next year and the near-term can be zero.
Cost of Debt (Pre-tax)	<p>This is estimated by adding a default spread to the risk free rate.</p> <p>Pre-tax cost of debt = Risk free rate + Default spread</p> <p>The default spread can be estimated by (a) finding a bond issued by the firm and looking up its current market interest rate or yield to maturity (b) finding a bond rating for the firm and using that rating to estimate a default spread or (c) estimating a bond rating for the firm and using that rating to come up with a default spread.</p>	<p>The rate at which the firm can borrow long term today. The key words are long term - we implicitly assume that the rolled over cost of short term debt converges on the long term rate- and today - we really don't care about what rate the firm borrowed at in the past (a book interest rate).</p>	<p>A company's pre-tax cost of debt can and will change over time as risk free rates, default spreads and even the tax rate change over time. We are trying to estimate one consolidated cost of debt for all of the debt in the firm. If a firm has senior and subordinated debt outstanding, the former will have a lower interest rate and default risk than the former, but you would like to estimate one cost of debt for all of the debt outstanding.</p>
Cost of Equity	<p>In the CAPM: Cost of Equity = Risk free Rate + Beta (Equity Risk Premium)</p> <p>In a multi-factor model: Cost of Equity = Risk free Rate + Beta for factor j * Risk premium for factor j (across all j)</p>	<p>The rate of return that stockholders in your company expect to make when they buy your stock. It is implicit with equities and is captured in the stock price.</p>	<p>Different investors probably have different expected returns, since they see different amounts of risk in the same investment. It is to get around this problem that we assume that the marginal investor in a company is well diversified and that the only risk that gets priced into the cost of equity is risk that cannot be diversified away.</p> <p>The cost of equity can be viewed as an opportunity cost. This is the return you would expect to make on other investments with similar risk as the one that you are investing in.</p>
Cost of preferred stock	<p>Preferred dividend yield = Preferred (annual) dividends per share/</p>	<p>The rate of return that preferred stockholders demand for investing</p>	<p>The cost of preferred stock should lie somewhere between the</p>

	Preferred stock price	in a company	cost of equity (which is riskier) and the pre-tax cost of debt (which is safer). Preferred dividends are generally not tax deductible; hence, not tax adjustment is needed. In Latin America, preferred stock usually refers to common stock with no voting rights but preferences when it comes to dividends. Those shares should be treated as common equity.
D/(D+E)	See Debt Ratio		
D/E Ratio	See Debt/Equity Ratio		
Debt	Interest bearing debt + Off-balance sheet debt	Borrowed money used to fund operations	For an item to be categorized as debt, it needs to meet three criteria: (a) it should give rise to a fixed commitment to be met in both good and bad times, (b) this commitment is usually tax deductible and (c) failure to meet the commitment should lead to loss of control over the firm. With these criteria, we would include all interest bearing liabilities (short term and long term) as debt but not non-interest bearing liabilities such as accounts payable and supplier credit. We should consider the present values of lease commitments as debt.
Debt (Market value)	Estimated market value of book debt	Market's estimate of the value of debt used to fund the business	At most companies, debt is either never traded (it is bank debt) or a significant portion of the

			<p>debt is not traded. Analysts consequently assume that book debt = market debt. You can convert book debt into market debt fairly easily by treating it like a bond: the interest payments are like coupons, the book value is the face value of the bond and the weighted maturity of the debt is the maturity of the bond. Discounting back at the pre-tax cost of debt will yield an approximate market value for debt.</p>
Debt Ratio (Book Value)	$\frac{\text{Book value of debt}}{\text{Book value of debt} + \text{Book value of equity}}$	<p>This is the accountant's estimate of the proportion of the book capital in a firm that comes from debt.</p>	<p>It is a poor measure of the true financial leverage in a firm, since book value of equity can not only differ significantly from the market value of equity, but can also be negative. It is, however, often the more common used measure and target for financial leverage at firms that want to maintain a particular debt ratio.</p>
Debt Ratio (Market Value)	$\frac{\text{Market value of debt}}{\text{Market value of debt} + \text{Market value of equity}}$	<p>This is the proportion of the total market capital of the firm that comes from debt.</p>	<p>The market value debt ratio, with debt defined to include both interest bearing debt and leases, will never be less than 0% or higher than 100%. Since a significant portion or all debt at most firms is non-traded, analysts often use book value of debt as a proxy for market value. While this is a reasonable approximation for most firms, it will break down for firms whose default risk has changed</p>

			significantly since the debt issue. For these firms, it makes sense to convert the book debt into market debt by treating the aggregate debt like a coupon bond, with the interest payments as coupons and discounting back to today using the pre-tax cost of debt as the discount rate.
Debt/Equity Ratio	Debt/ Equity	This measures the number of dollars of debt used for every dollar of equity.	The debt to equity ratio and the debt to capital ratio are linked. In fact, $Debt/Equity = \frac{D}{(D+E)} / (1 - \frac{D}{(D+E)})$ Thus, if the debt to capital is 40%, the debt to equity is 66.667% (.4/.6) In practical terms, the debt to capital ratio is used in computing the cost of capital and the debt to equity to lever betas.
Default spread	Default spread: Difference between the pre-tax cost of debt for a firm and the risk free rate	Measures the additional premium demanded by lenders to compensate for risk that a firm will default.	The default spread should always be greater than zero. If the risk free rate is correctly defined, no firm, no matter how safe, should be able to borrow at below this rate. The default spread can be computed in one of three ways: a. Finding a traded bond issued by a company and looking up the yield to maturity or interest rate on that bond. b. Finding a bond rating for a firm and using it to estimate the default spread c. Estimating a bond rating for a firm and using it to estimate the

			default spread
Deferred Tax (Asset)	Deferred Tax asset (on balance sheet)	Measures the credit that the firm expects to get in future periods for overpaying taxes in current and past periods. The credit will take the form of lower taxes in future periods (and a lower effective tax rate)	For this asset to have value, the firm has to anticipate being a going concern, profitable and being able to claim the overpayments as tax deduction in future time periods. In other words, there would be no value to this asset if the firm were liquidated today.
Deferred Tax (Liability)	Deferred tax liability (on balance sheet)	Measures the liability that the firm sees in the future as a consequences of underpaying taxes in the current or past periods. The liability will take the form of higher taxes in future periods (and a higher effective tax rate)	It is not clear that this is a liability in the conventional sense. If you liquidated the firm today, you would not have to meet this liability. Consequently, it should not be treated like debt when computing cost of capital or even when going from firm value to equity value. The most effective way of showing it in a valuation is to build it into expected tax payments in the future (which will result in lower cash flows)
Depreciation and Amortization	Accounting write-off of capital investments from previous years.	Reflects the depletion in valuation of existing assets - depreciation for tangible and amortization for intangible.	Accounting depreciation and amortization usually is not a good reflection of economic depletion, since the depreciation choices are driven by tax rules and considerations. Consequently, you may be writing off too much of some assets and too little of others. While depreciation is an accounting expense, it is not a cash expense. However, it can affect taxes because it is tax deductible. The tax benefit from depreciation

			<p>in any given year can be written as: Tax benefit from depreciation = Depreciation * Marginal tax rate Amortization shares the same effect, if it is tax deductible but it often is not. For instance, amortization of goodwill generally does not create a tax benefit. One final point. Most US firms maintain different sets of books for tax and reporting purposes. What you see as depreciation in an annual report will deviate from the tax depreciation.</p>
Dividend Payout	Dividends/ Net Income Usually cannot be compute for money losing companies and can be greater than 100%.	Measures the proportion of earnings paid out and inversely, the amount retained in the firm.	The dividend payout ratio is widely followed proxy for a firm's growth prospects and place in the life cycle. High growth firms, early in their life cycles, generally have very low or zero payout ratios. As they mature, they tend to return more of the cash back to investors causing payout ratios to increase. In many markets, as companies have chosen to switch to stock buybacks as an alternative to dividends, this ratio has become less meaningful. One way to adapt it to switch to an augmented payout ratio: Augmented Payout Ratio = (Dividends + Buybacks)/ Net Income
Dividend Yield	Dividends per share/ Stock Price	Measures the portion of your expected return on a stock that	The dividend yield is the cash yield that you get from investing in stocks.

		will come from dividends; the balance has to be expected price appreciation.	Generally, it will be lower than what you can make investing in bonds issued by the same company because you will augment it with price appreciation. There are some stocks that have dividend yields that are higher than the risk free rate. While they may seem like a bargain, the dividends are not guaranteed and may not be sustainable. Studies of stock returns over time seem to indicate that investing in stocks with high dividend yields is a strategy that generates positive excess or abnormal returns. Finally, the oldest cost of equity model is based upon adding dividend yield to expected growth: $\text{Cost of equity} = \text{Dividend yield} + \text{Expected growth rate}$ This is true only if you assume that the firm is in stable growth, growing at a constant rate forever.
Dividends	Dividends paid by firm to stockholders	Cash returned to stockholders	Dividends are discretionary and firms do not always pay out what they can afford to in dividends. This is attested to by the large and growing cash balances at firms. Models that focus on dividends often miss two key components: (a) Many companies have shifted to return cash to stockholders with stock buybacks, instead of dividends and (b) The

			potential dividends can be very different from actual dividends. For a measure of potential dividends, see Free Cash flow to Equity.
Earnings Yield	Earnings per share/ Stock price	This is the inverse of the PE ratio and measures roughly what the firm generates as earnings for every dollar invested in equity. It is usually compared to the risk free or corporate bond rate to get a measure of how attractive or unattractive equity investments are.	Analysts read a lot more into earnings yields than they should. There are some who use it as a measure of the cost of equity; this is true only for mature companies with no growth opportunities with potential excess returns. One nice feature of earnings yields is that they can be computed and used even if earnings are negative. In contrast, PE ratios become meaningless when earnings are negative.
EBITDA	Earnings before interest expenses(or income), taxes, depreciation and amortization	Measures pre-tax cash flow from operations before the firm makes any investment back to either maintain existing assets or for growth	EBITDA is used as a crude measure of the cash flows from the operating assets of the firm. In fact, there are some who argue that it is the cash available to service interest and other debt payments. That view is misguided. Firms that have large depreciation charges often have large capital expenditure needs and they still have to pay taxes. In fact, it is entirely possible for a firm to have billions in EBITDA and no cash available to service debt payments (See Free Cash Flow to the Firm for a more complete measure of operating cash flow)
Economic Profit, Economic Value	(Return on Invested Capital - Cost of	Measures the dollar excess return	To the degree that the book value of invested

Added or EVA	Capital) (Book Value of Invested Capital) (See Excess Returns)	generated on capital invested in a company	capital measures actual capital invested in the operating assets of the firm and the after-tax operating is a clean measure of the true operating income, this captures the quality of a firm's existing investments. As with other single measures, though, it can be easily gamed by finding ways to write down capital (one-time charges), not show capital invested (by leasing rather than buying) or overstating current operating income.
Effective tax rate	Taxes payable/ Taxable income	Measures the average tax rate paid across all of the income generated by a firm. It thus reflects both bracket creep (where income at lower brackets get taxed at a lower rate) and tax deferral strategies that move income into future periods.	Attesting to the effectiveness of tax lawyers, most companies report effective tax rates that are lower than their marginal tax rates. The difference is usually the source of the deferred tax liability that you see reported in financial statements. While the effective tax rate is not particularly useful for computing the after-tax cost of debt or levered betas, it can still be useful when computing after-tax operating income (used in the Free Cashflow to the Firm and return on invested capital computations) at least in the near term. It does increasingly dangerous to assume that you can continue to pay less than your marginal tax rate for longer and longer periods, since this essentially allows for

			long-term or even permanent tax deferral.
Enterprise Value	Market value of equity + Market value of debt - Cash + Minority Interests	Measures the market's estimate of the value of operating assets. We net out cash because it is a non-operating assets and add back minority interests since the debt and cash values come from fully consolidated financial statements. (See Minority Interests for more details)	In practice, analysts often use book value of debt because market value of debt may be unavailable and the minority interest item on the balance sheet. The former practice can be troublesome for distressed companies where the market value of debt should be lower than book value and the latter practice is flawed because it measures the book value of the minority interests when what you really want is a market value for these interests. This computation can also sometimes yield negative values for companies with very large cash balances. While this represents a bit of puzzle (how can a firm trade for less than the cash on its balance sheet?), it can be explained by the fact that it may be impossible to take over the firm and liquidate it or by the reality that the cash balance you see on the last financial statement might not be the cash balance today.
Enterprise Value/ Invested Capital	(Market value of equity + Debt - Cash + Minority Interests)/ (Book value of equity + Debt - Cash + Minority Interests) (See descriptions of Enterprise value and Invested Capital)	Market's assessment of the value of operating assets as a percentage of the accountant's estimate of the capital invested in these assets	By netting cash out of the both the numerator and the denominator, we are trying to focus attention on just the operating assets of the firm. This ratio, which has an equity analogue in the price to book ratio, is determined

			most critically by the return on invested capital earned by the firm; high return on invested capital will lead to high EV/Capital ratios.
Enterprise Value/EBITDA	(Market value of equity + Debt - Cash + Minority Interests)/EBITDA (See descriptions of Enterprise Value and EBITDA)	Multiple of pre-tax, pre-reinvestment operating cash flow that the firm trades at	Commonly used in sectors with big infrastructure investments where operating income can be depressed by depreciation charges. Allows for comparison of firms that are reporting operating losses and diverge widely on depreciation methods used. It is also a multiple used by acquirers who want to use significant debt to fund the acquisition; the assumption is that the EBITDA can be used to service debt payments. Cash is netted out from the firm value because the income from cash is not part of EBITDA. However, the same can be said of minority holdings in other companies - the income from these holdings is not part of EBITDA - and the estimated value of these holdings should be netted out as well. With majority holdings, the consolidation that follows creates a different problem: the market value of equity includes only the portion of the subsidiary owned by the parent but all of the other numbers in the computation reflect all of

			the subsidiary. This should explain why minority interests are added back to the numerator.
Enterprise Value/ Sales	(Market value of equity + Debt - Cash + Minority Interests)/ Revenues	Market's assessment of the value of operating assets as a percentage of the revenues of the firm.	While the price to sales ratio is a more widely used multiple, the enterprise value to sales ratio is more consistent because it uses the market value of operating assets (which generate the revenues) in the numerator.
Equity EVA	(Return on Equity - Cost of Equity) (Book Value of Equity) (See Excess Returns (on Equity))	Measures the dollar excess return generated on equity invested in a company	To the degree that the inputs into the equation are reasonable estimates, this becomes a measure of the success a company has shown with its existing equity investments. However, both the return on equity and book value of equity are accounting numbers, and can be skewed by decisions (such as stock buybacks and restructuring charges). At the limit, it becomes meaningless when the book value of equity becomes negative.
Equity Reinvestment Rate	((Capital Expenditures - Depreciation) – Change in non-cash Working Capital - (Principal repaid - New Debt Issued))/ Net Income	Measures the proportion of net income that is reinvested back into the operating assets of the firm	The conventional measure of equity reinvestment is the retention ratio, which looks at the proportion of earnings that do not get paid out as dividends. The equity reinvestment is both more focused and more general. It is more focused because it looks at the portion of the earnings held back that get invested into the operating assets of the

			firm and more general because it can be a negative value (for firms that are letting their assets run down) or greater than 100% (for firms that are issuing fresh equity and investing it back into the business).
Equity Risk Premium (ERP)	Expected Returns on Equity Market Index – Risk free Rate	Premium over the risk free rate demanded by investors for investing the average risk stock	The ERP is a key component of the cost of equity for all companies, since it is multiplied by the beta to get to the cost of equity. If you over estimate the ERP, you are going to under value all companies.
Equity Risk Premium – Historical	Average Annual Return on Stocks - Average Annual Return on Risk free investment	Actual premium earned by investors on stocks, relative to risk free investment, over the time period	The historical risk premium is usually estimated by looking at long time period. For instance, in the United States, it is usually estimated over eight decades (going back to 1926). There are two dangers in using this historical risk premium. The first is that the long time period notwithstanding, the historical risk premium is an estimate with a significant standard error (about 2% for 80 years of day). The second is that the market itself has probably changed over the last 80 years, making the historical risk premium not a good indicator for the future.
Equity Risk Premium - Implied	Growth rate implied in today's stock prices, given expected cash flows and a risk free rate. (Think of it as a internal rate of return for	Reflects the risk that investors see in equities right now. If investors think equities are riskier, they will pay less for	The implied equity risk premium moves inversely with stock prices. When stock prices go up, the implied equity risk premium will be low.

	equities collectively).	stocks today.	When stock prices go down, the implied premium will be high. Notwithstanding the fact that you have to use an expected growth rate for earnings and a valuation model, the implied equity risk premium is both a forward looking number (relative to historical premiums) and constantly updated.
Excess Returns	Return on Invested Capital - Cost of capital	Measure the returns earned over and above what a firm needed to make on an investment, given its risk and funding choices (debt or equity).	Excess returns are the source of value added at a firm; positive net present value investments and value creating growth come from excess returns. However, excess returns themselves are reflections of the barriers to entry or competitive advantages of a firm. In a world with perfect competition, no firm should be able to generate excess returns for more than an instant.
Excess Returns (on equity)	Return on Equity - Cost of Equity	Measures the return earned over and above the required return on an equity investment, given its risk. It can be at the level of the firm making real investments and at the level of the investor picking individual stocks for her portfolio.	To generate excess returns, you have to bring something special to the table. For firms, this may come from a brand name, economies of scale or a patent. For investors, it is more difficult but it can be traced to better information, better analysis or more discipline than other investors.
Firm Value	Market Value of Equity + Market Value of Debt	Measures the market value of all assets of a firm, operating as well as non-operating.	Since the value of the firm includes both operating and non-operating assets, it will be greater than enterprise value. To the extent that we are looking at how

			value relates to operating items (operating income or EBITDA), you should not use firm value but should use enterprise value instead; the income from cash is not part of operating income or EBITDA.
Fixed Assets/Total Assets	Fixed Assets/ Total Assets	Measures how much of a firm's investments are in tangible assets.	This ratio should be higher for manufacturing firms than for service firms and reflects the bias in accounting towards tangible assets. Many lenders seem to share this bias and are willing to lend more to firms with significant fixed assets. The ratio can also be affected by the age of the assets, since older assets, even if productive, will be written down to lower values.
Free Cash Flow to Equity (FCFE)	FCFE = Net Income - (Capital Expenditures - Depreciation) - Change in non-cash Working Capital - (Principal repaid - New Debt Issued)	Measures cash flow left over for equity investors after taxes, reinvestment needs and debt needs are met. For a growing firm, debt cash flows can be a source of positive cash flows; new debt brings cash to equity investors.	This is a post-debt cash flow. When it is positive, it measures what can be paid out by the firm without doing any damage to its operations or growth opportunities. In other words, it is the potential dividend and can be either paid out as such or used to buy back stock. When it is negative, it indicates that the firm will have raise fresh equity. When we discount FCFE in a valuation model, we are implicitly assuming that no cash builds up in the firm and the present value will already incorporate the effect of future stock issues. (Discounting negative

			FCFE in the early years will push down the value per share today; think of that as the dilution effect)
Free Cash Flow to Firm (FCFF)	$\text{FCFF} = \text{EBIT}(1-t) - (\text{Capital Expenditures} - \text{Depreciation}) - \text{Change in non-cash Working Capital}$	Measures cash flow left over for all claimholders in the firm (lenders and equity investors) after taxes and reinvestment needs have been met.	<p>This is a pre-debt cash flow. That is why we start with operating income, rather than net income (which is after interest expenses) and act like we pay taxes on operating income. In effect, we are acting like we have no interest expenses or tax benefits from these interest expenses when computing cash flows. That is because these cash flows are discounted back at a cost of capital that already reflects the tax benefits of borrowing (through the after-tax cost of debt).</p> <p>A positive free cash flow to the firm is cash available to be used to make payments to debt (interest expenses and principal payments) and to equity (dividends and stock buybacks).</p> <p>A negative free cash flow to the firm implies that the firm faces a cash deficit that has to be covered by either issuing new stock or new debt (the debt ratio used in the cost of capital determines the mix).</p>
Fundamental growth in EPS	Retention Ratio * Return on Equity (See definitions of both items)	Expected growth in earnings per share if the firm maintains this return on equity on new investment and invests what it does not pay out as	Since the retention ratio cannot exceed 100%, this caps the growth in earnings per share at the return on equity, if the return on equity is stable. However, this formula

		dividends in these new investments.	will yield an incomplete measure of growth when the return on equity is changing on existing assets. In that case, there will be an additional component to growth that we can label efficiency growth. Thus, doubling the return on equity on existing assets from 5% to 10% will generate a growth rate of 100% even if the retention ratio is zero.
Fundamental growth in net income	Equity Reinvestment Rate * Non-cash Return on Equity (See definitions of both items)	Measures the growth rate in net income from operating assets, if the equity reinvestment rate and return on equity remain unchanged.	Since the equity reinvestment rate can be greater than 100% or less than 0%, this measures implies that the growth in net income can exceed growth in earnings per share (for firms that issue new stock to reinvest) or be negative (for firms with negative equity reinvestment rates). As with the other fundamental growth measures, this one measures growth only from new investments; there can be an additional component that can be traced to improving or dropping return on equity on existing investments.
Fundamental growth in operating income	Reinvestment Rate * Return on Capital	Measures the growth rate in after-tax operating income, if the reinvestment rate and return on capital remain unchanged.	The growth in operating income is a function of both how much a firm reinvests back (reinvestment rate) and how well it reinvests its money (the return on capital). As a general rule, growth created by reinvesting more at a return on capital that is more (less) than the cost

			of capital will create (destroy) value. A firm's growth rate in the short term can be higher or lower than this number, to the extent that the return on capital on existing assets increases or decreases.
Goodwill	Price paid for equity in an acquisition - Book value of equity in acquired company	Measures the intangible assets of the target company	In reality, goodwill is not an asset but a plug variable used to balance the balance sheet after an acquisition. It is composed of three parts - the value of the growth assets of the target firm (which would not have been reflected in the book value), the value of synergy and control and any overpayment made by the firm. How we deal with goodwill will vary depending on its source. If it is for growth assets, it creates inconsistencies in balance sheets since we do not allow firms to record growth assets that may be generated internally. If it is for synergy and control, it should be reflected as additional value in the consolidated balance sheet, but that value has to be reassessed, given the actual numbers. If it is an overpayment, it is money wasted. When we do return on invested capital, for instance, we clearly want to subtract out the first from invested capital but we should leave the last two elements in the number.
Gross Margin	Gross Profit/ Sales		

	(See Gross Profit)		
Gross Profit	Revenues - Cost of Goods Sold	Measures the profits generated by a firm after direct operating expenses but before indirect operating expenses, taxes and financial expenses.	The line between gross and operating profit is an artificial one. For the most part, the expenses that are subtracted out to get to gross profit tend to be costs directly traceable to the product or service sold and the expenses that are treated as indirect are expenses such as selling, general and administrative costs. If we treat the latter as fixed costs and the former as variable, there may be some information in the gross profit.
Historical Equity Risk Premium	See Equity Risk Premium (Historical)		
Historical Growth Rate	Growth rate in earnings in the past. $\left(\frac{\text{Earnings (today)}}{\text{Earnings (n years ago)}}\right)^{1/n} - 1$	Measures how quickly a firm's earnings have grown in the past.	Historical growth rates can be sensitive to starting and ending periods and to how the average is estimated - arithmetic averages will generally yield higher growth rates than geometric averages. While knowing past growth makes us feel more comfortable about forecasting future growth, history suggests that past growth is not a good predictor of future growth.
Hybrid security	A security that combines the features of debt and equity	Capital invested (not current market value) of issued security.	Hybrid securities are best dealt with, broken up into debt and equity components. For convertible bonds, for instance, the conversion option is equity and the rest is debt. Preferred stock is tougher to categorize and may

			require a third element in the cost of capital.
Implied Equity Risk Premium	See Equity Risk Premium (Implied)		
Insider Holdings %	Shares held by insiders/ Shares outstanding	Measures how much of the stock is held by insiders in a company. The SEC definition of insiders includes those who hold more than 5% of the shares.	If we assume that insiders are or are allied with the incumbent managers of the firm, this ratio becomes an inverse measure of how much influence outside stockholders have over this firm. The higher this ratio, the less of a role outside investors will have in the management of a company... This can also have an effect in how we think about and measure risk. If the insider holdings are high, the assumption we make about marginal investors being well diversified in risk and return models may come under assault.
Institutional Holding %	Shares held by institutions/ Shares outstanding	Measures how much of the stock is held by mutual funds, pension funds and other institutional investors.	If institutional investors hold a substantial proportion of a firm, the assumption we make about investors being well diversified is well founded. Consequently, we can safely assume that only non-diversifiable risk has to be priced into the cost of equity and ignore risk that can be diversified away.
Interest coverage ratio	Interest coverage ratio = EBIT / Interest Expense	Measures the margin for error the firm has in making its interest expenses. If this ratio is high, the firm has much more margin for error and is therefore	There are a number of ratios that measure a firm's capacity to meet its debt obligation. The fixed charges ratio, for instance, is the ratio of EBITDA to total fixed

		safer (from the lender's perspective)	charges. In estimating this ratio, you should try to get a measure of the operating income that the firm can generate in a normal year (this may require looking at operating income over an economic cycle or over a period of time) relative to its interest expenses. Other things remaining equal, the higher this ratio, the higher the rating and the lower the default spread for a firm.
Inventory/ Sales	Estimated by dividing the cumulated inventory for the sector by the cumulated sales for the sector	Measures how much inventory the firm needs to hold to sustain its revenues.	When this ratio is high, a firm will find that its cash flows lag its earnings. The magnitude of this number will vary across businesses. Generally, businesses that sell high priced products where sales turnover ratios are low (luxury retailers, for instance) will have to maintain high inventory.
Invested Capital	See Book Value of Invested Capital		
Leases (Operating)	Expense for current year is shown as part of operating expenses; commitments for future years are shown in footnotes.	Measured the reduction in income created by having to meet lease obligations in current period.	While accountants and tax authorities draw a distinction between operating and capital leases, they look much the same from a financial perspective. They are both the equivalent of borrowing, though lease commitment can be viewed as more focused borrowing (because it is tied to an individual asset or site) and more flexible (a firm can abandon an individual lease without declaring bankruptcy) than conventional debt. The best approach is to

			<p>use the pre-tax cost of debt as the discount rate and discount future lease commitments back to today to get a debt value for operating leases. This will also create a leased asset, which has to be depreciated. As a result, operating income will have to be restated:</p> $\text{Adjusted Operating Income} = \text{Operating Income} + \text{Current year's lease expense} - \text{Depreciation on leased asset}$
Leases (Capital)	<p>Commitments converted into debt (by discounting at a pre-tax cost of debt) and shown on balance sheet. Imputed interest expenses and depreciation shown on income statement.</p>	<p>Measures the debt equivalent of lease commitments.</p>	<p>Accountants do for capital leases what we suggested that they need to do for operating leases. One cost of having them do it (rather than yourself) is that you do not control when the present value is computed (usually at the time of the financial statement) and the pre-tax cost of debt used.</p>
Marginal tax rate	<p>Tax rate on last dollar or next dollar of income.</p>	<p>Measures the taxes you will have to pay on additional income that you will generate on new investments and the savings that you will obtain from a tax deduction.</p>	<p>The marginal tax rate is best located in the tax code for the country in which a company operates. In the United States, for instance, the marginal federal tax rate is 35%. With state and local taxes added on, this number will increase (to 38-40%). For companies operating in multiple countries, we can use one of two approximations. One (the easier one) is to assume that income will eventually have to make its way to the company's domicile and use the</p>

			<p>marginal tax rate for the country in which the company is incorporated. The other is to use a weighted average tax rate, with the weights based on operating income in each country, of the marginal tax rates.</p>
Market Capitalization	<p>Estimated market value of shares outstanding, obtained by multiplying the number of shares outstanding by the share price.</p>	<p>Market's estimate of what the common stock in a firm is worth.</p>	<p>When a firm has non-traded or multiple classes of shares, the market capitalization should include the value of all shares and not just the most liquid class of shares. This may require assuming a market price for non-traded shares.</p>
Market Debt Ratio	<p>See Debt Ratio (Market value)</p>		
Market value of equity	<p>Market value of common shares outstanding + Market value of other equity claims on the firm</p>	<p>Market's estimate of what the equity in a firm is worth.</p>	<p>Most analyses assume that market capitalization = market value of equity. However, when a firm has used warrants, convertible bonds or even management options, it has issued equity claims in the form of options. In theory, at least, these options should be valued and treated as part of the market value of equity.</p>
Minority Interests	<p>Minority interests (liability on balance sheet)</p>	<p>Accountant's estimate of the value of the portion of a fully consolidated subsidiary that does not belong to the parent company.</p>	<p>Minority interests are a logical outgrowth of full consolidation. When you own 60% of a subsidiary, you are forced to fully consolidate and show 100% of the subsidiary's earnings and assets as belonging to the parent company. Since the parent company owns only 60%, the accounting conventional requires you to show the 40% of</p>

			<p>the subsidiary that does not belong to you as a minority interests. The problem, though, is that most computations requiring minority interests (enterprise value, for instance) require an estimated market value for this minority interest. To convert the book value of minority interests into a market value, you could try to estimate a price to book ratio and apply this to the minority interests.</p>
<p>Net Capital Expenditures</p>	<p>Capital Expenditures - Depreciation (See description of each item)</p>	<p>Measures the net investment into the long term assets of a business.</p>	<p>Your assumptions about net capital expenditures will largely determine what happens to your capital base over time. If you assume that net capital expenditures are zero and you ignore working capital needs, your book capital will stay frozen over time. If you concurrently assume that the operating income will go up 2 or 3% every year, you will very quickly find your return on capital rising to untenable levels. That is why, in stable growth, we assume that the capital base increases in lock-step with the operating income (thus keeping return on capital fixed). In any given year, for a firm, the net capital expenditure number can be negative. This can often be a reflection of the lumpiness of capital expenditures, where firms invest a lot in one</p>

			year and not very much in subsequent years In special cases, it may represent a deliberate strategy on the part of the firm to shrink itself over time, in which case the growth rate should be negative.
Net Margin	Net Income/ Sales	Measures the profit mark-up on all costs (operating and financial) on the products and services sold by the firm.	Net margins vary widely across sectors and, even within a sector, widely across firms as a reflection of the pricing strategy adopted by the firm. Some firms adopt low-margin, high volume strategies whereas others go for high-margin, low volume strategies. Much as we would like to get the best of both worlds - high margins and high volume - it is usually infeasible. Net margins will also be affected by how much debt you choose to use to fund your operations. Higher debt will lead to higher interest expenses and lower net income and net margins.
Non-cash ROE	(Net Income - Interest income from cash) / (Book value of equity - Cash and Marketable securities)	Measures the return earned on the equity invested in the operating assets of the firm. It eliminates cash from the mix in both the numerator and the denominator.	For firms with substantial cash balances, the non-cash ROE provided a cleaner measure of the performance of the firm. After all, cash is usually invested in low-return, close to risk less assets and including it (as we do in return on equity) can depress the return on equity.
Non-Cash Working Capital	Non-cash Working Capital = Inventory + Other Current Assets + Accounts Receivable -	Total Investment in short term assets of a business.	When service oriented and retail firms want to grow, their investment is often in short term assets

	Accounts Payable - Other Current Liabilities [Current assets excluding cash - Current liabilities excluding interest bearing debt)		and the non-cash working capital measures this reinvestment. We exclude cash from current assets because it is not a wasting assets if it is invested to earn a fair market return (which may be the risk less rate if the investment in is treasury bills) and short term interest bearing debt from current liabilities, because we include it with other interest bearing debt in computing the cost of capital.
Non-cash Working Capital (Change)	Change in non-cash working capital from period to period	New investment in short term assets of a business.	An increase in non-cash working capital is a negative cash flow since it represents new investment. A decrease in non-cash working capital is a positive cash flow and represents a drawing down on existing investment. This is a volatile number and it is not uncommon to see a year with a large increase followed by a year with a large decrease. It makes sense to look at either averages over time or at the total non-cash working capital as a percentage of revenues or operating income.
Operating Income	Operating income or Earnings before interest and taxes	Income generated before financial and capital expenditures.	A good measure of operating income will subtract only operating expenses from revenues. In practice,, though, accountants routines treat capital expenditures in some businesses as operating expenses

			(R&D at technology firms, exploration costs at natural resource companies, training expenses at consulting firms) and financial expenses also as operating expenses (operating leases for all firms). To measure operating expenses correctly, we have to correct for these errors.
Operating Income (After-tax)	Earnings before interest and taxes (1 - tax rate)	After-tax earnings generated by a firm from its operating assets before financial and capital expenses.	To prevent double counting the tax benefit from interest expenses, you should estimate hypothetical taxes on the operating income and not use actual or cash taxes paid. (See definition of effective tax rate for discussion of whether to use the marginal or effective tax rate).
Operating Margin (After-tax)	After-tax Operating Margin = $EBIT(1-t) / \text{Sales}$	Measures the post-tax mark-up on operating costs for products and services sold by the firm.	Unlike net profit margins which are affected by debt ratios and financial leverage, operating profit margins can be compared across firms with very different debt ratios. The return on invested capital for a firm can be stated in terms of the after-tax operating margin and the sales turnover ratio (Sales/ Book Value of Invested Capital) Return on capital = Operating
Operating Margin (Pre-tax)	Operating Margin = Operating Income/ Sales	Measures the pre-tax mark-up on operating costs for products and services sold by the firm.	Operating margins can be compared across companies with different debt ratios and tax rates, since it is prior to financial expenses and taxes.

Preferred Stock	Book value of Preferred Stock	Capital raised from preferred stock	Preferred stock shares features with debt (fixed dividends that are often cumulative) and equity (failure cannot push you into bankruptcy. This is one of the few casts where you will allow for a third component in the cost of capital, with its own cost.
Price Earnings Ratio (PE)	Price per share/ Earnings per share (or) Market Capitalization/ Net Income (See Earnings Yield)	Market value of equity as a multiple of equity earnings	The conventional computation of PE ratios is based upon per share values, but this can be problematic when there are options outstanding; some analysts use diluted earnings per share while others use primary earnings per share. In reality, neither approach does a good job of dealing with options, since an option is either counted as a share or not. A far more consistent definition of PE ratio would be based on aggregate numbers and reflect the value of the options outstanding: PE corrected for options = (Market Capitalization + Value of Options)/ Net Income The PE ratio for a firm will be determined by its risk (cost of equity), growth (in equity earnings) and efficiency of growth (payout ratio). If the earnings are negative, the PE ratio is not meaningful.
Price to Book Ratio (PBV)	Price per share/ Book value of equity per share (or) Market Capitalization/	Market value of equity as a multiple of the accountant's estimate of equity	The price to book ratio is used as a simple measure of undervaluation; in fact, investors who buy

	Book value of equity	value	low price to book ratios are categorized as value investors. The most critical determinant of the price to book ratio for a firm is the return on equity, with high return on equity stocks trading at high price to book ratios.
Price to Sales Ratio	Market Capitalization/ Revenues	Market value of equity as a multiple of revenues generated by a firm	While this multiple is used frequently with technology firms (especially if they are not making money) and with retail firms, it is internally inconsistent. The numerator measures equity value but the denominator, revenues, does not accrue to equity investors alone. A more consistent version of this multiple is the enterprise value to sales ratio. The price to sales ratio is determined most critically by the net profit margin; high margin companies will tend to have high price to sales ratios.
Provision for (Bad debts, Litigations costs etc.)	Accounting charge to income to cover potential or likely expenses in future periods.	Smoothed out measure of lumpy expenses that otherwise would make earnings much more volatile.	A provision is not a cash expense. In the period that the provisional charge is made, no cash expense is incurred, and the reported earnings will be lower than cash earnings. In subsequent periods, when the expected expense materializes, it is offset against the provision and the effect on earnings in those periods will be muted. If all firms were consistent about how they set provisions and

			set them equal to expected, provisional charges are useful because they smooth earnings for a good reason. However, if some companies are aggressive about their loss estimates (set provisions too low) and others are too conservative (set provisions too high), we will overstate the earnings of the former and understate earnings for the latter.
R&D	See Research and Development Expenses		
R-squared (Market regression)	$\text{Beta}^2 \times \text{Variance of the market} / \text{Variance of the stock (asset)}$ (Usually output from regression of stock (asset) returns against market returns)	Proportion of a stock's (asset's) risk that can be explained by the market. R-squared = Correlation of the stock with the market ²	While the R-squared and the correlation of a stock with the market seem to measure the same thing (how a stock moves with the market), there are two key differences. The first is that the R-squared is always a positive number whereas the correlation can be positive or negative. In other words, a high R-squared can indicate either a stock that moves with the market or against it. The second is that the R-squared is the more consistent number to use when talking about variances whereas the correlation coefficient is more relevant when talking about standard deviations or betas.
Reinvestment Rate	$\text{Reinvestment Rate} = \frac{\text{Net Capital Expenditures} + \text{Change in Non-cash Working capital}}{\text{EBIT} (1-t)}$	Proportion of a firm's after-tax operating income that is put back into the business to create future growth.	The reinvestment rate is the firm analogue to the equity reinvestment rate (which measures how much of equity earnings is reinvested back into

			<p>the business). The key difference is that you look at total reinvestment rather than just the equity portion of that reinvestment and the after-tax operating income, rather than net income.</p> <p>Like the equity reinvestment rate, this number can be negative, in which case the firm is shrinking the capital invested in the business, or greater than 100%, in which case it is raising fresh capital.</p>
<p>Research and Development Expenses (R&D)</p>	<p>Operating expense item in the income statement includes the current year's R&D expense.</p>	<p>Investment in basic research that may or may not pay off as products in the future.</p>	<p>If we stay true to the definition of capital expenditures (as expenses designed to generate benefits over many years), R&D is clearly a capital expenditure. However, accountants have used the uncertainty of potential benefits as a rationale for expensing the entire amount spent, arguing that this is the conservative thing to do. In reality, it is not conservative because it also means that the biggest asset on the books for some companies - money invested in developing new drugs in pharmaceutical companies or new technology at technology company - will not be on the books. As a result, we skew upwards the return on equity can capital calculations for these</p>

			<p>firms. It is best to capitalize R&D, using an amortizable life for research (the expected number of years, on average, between doing R&D and a product emerging) and R&D expenses from the past.</p>
Retention Ratio	1 - Dividend Payout Ratio	Proportion of net income not paid out as dividends and invested in either operating assets or held as cash.	<p>The retention ratio looks at retained earnings in a firm. While analysts often assume that these earnings are being reinvested, that assumption does not always hold, since the firm may just hold cash balances. That is part of the reason we compute an equity reinvestment rate, which measures more directly equity investment in operating assets (rather than cash). The retention ratio cannot be less than 0% or greater than 100%.</p>
Return on Assets	EBIT (1-t)/ Book value of total assets	Return generated by existing assets	<p>While some analysts use this ratio interchangeably with the return on capital, there is one key difference: Capital Invested = Debt + Equity - Cash = Total Assets - Cash - Non-debt Current liabilities In effect, capital invested does not include all assets; it explicitly eliminates cash and includes non-cash working capital (which is the difference between non-cash current assets and non-debt current liabilities). If you plan on comparing a return to the cost of capital, the more</p>

			consistent measure is the return on invested capital
Return on Capital (ROC)	$\text{EBIT} (1-t) / (\text{BV of Debt} + \text{BV of Equity-Cash})$ <p>The operating income is usually from the most recent time period and the numbers in the denominator are either from the start of that period or an average value over the period.</p>	<p>Return earned on the existing assets or projects of a firm. Often used as a measure of the quality of existing investments and compared to the cost of capital.</p>	<p>As with return on equity, we revert back to the book value of debt and equity in this computation (rather than use market value) because we are trying to get a sense of the returns that a firm is generating on the investments it has already made. Consequently, we are assuming that the book value of invested capital is a good measure of capital invested in existing assets. This assumption can be violated if a firm grows through acquisitions (goodwill may reflect growth assets) or takes accounting write-offs (thus shrinking book capital and making projects look better than they really are).</p>
Return on Equity (ROE)	$\text{Net Income} / \text{Book Value of Equity}$ <p>The net income is usually from the most recent time period and the numbers in the denominator are either from the start of that period or an average value over the period. (See Non-cash ROE for a variation)</p>	<p>Return earned on equity invested in existing assets. Compared to the cost of equity to make judgments on whether the firm is creating value. Cannot be computed if book equity is negative.</p>	<p>The book value of equity is assumed to be a good measure of equity invested in existing assets. This assumption may not be appropriate if that number is skewed by acquisitions (goodwill will inflate book equity) or write-offs (which tend to deflate book equity). If a company has a large cash balance, the return on equity will be affected by its presence. The denominator will include the cash balance and the numerator will include the income from that cash balance. Since cash</p>

			usually earns low, close to risk less rates, the return on equity will drop because of the presence of cash.
Return on Invested Capital (ROIC)	See Return on Capital		
Selling, General and Administrative Expenses (SG&A)	Expense item in the income statement that captures selling, advertising and general administrative costs that cannot be directly traced to individual products or services sold.	Indirect or allocated cost in a company. Comparing across companies (as a ratio of sales) may provide an indicator of corporate bloat and efficiency.	Selling, general and administrative costs is a loosely defined pot where accountants tend to throw in whatever costs they cannot fit into conventional line items. This makes comparisons across companies difficult to do. If you view these costs as fixed and all other operating costs as variable, this may be useful in computing operating leverage, but that is a strong assumption.
SG&A	See Selling, General and Administrative Expenses		
Standard deviation in equity	The standard deviation in either stock returns or in (stock prices) over time.	Variation in the market's estimate of the value of the equity in a firm over time.	For traded stocks, this can be computed fairly easily with two caveats. The first is that the standard deviation obtained will reflect the time intervals for the returns; in other words, the standard deviation in weekly stock returns will be a weekly standard deviation. It can be annualized by multiplying by the square root of 52. The second is that the standard deviations obtained over a period of time are still historical standard deviations and may not

			be appropriate forward looking estimates for firms that have changed their business mix or financial leverage.
Standard deviation in firm value	Standard deviation in total firm value (market value of debt plus equity)	Variation in the market's estimate of the value of the assets (existing and growth) owned by the firm over time.	Since debt is often not traded and equity is, at least for publicly traded firms, this number is usually obtained by adding the book value of debt to the market value of equity each period and then computing the standard deviation in the combined value over time; you can either compute the percentage change in value each period or use the $1n$ (value). An alternative approach is to use the standard deviations in stock and bond prices (if both the stock and the bonds are traded) and to take a weighted average of the two (allowing for the covariance between the two).
Tax Rate (Effective)	See Effective Tax Rate		
Tax Rate (Marginal)	See Marginal Tax rate		
Total Beta	Total Beta = Market Beta / Correlation between stock and market This measure is equivalent to dividing the standard deviation of a stock by the standard deviation of the market. For an undiversified investor, it may be a better measure of risk than the traditional market beta.	Relative volatility or standard deviation of an investment (relative to the market)	The total beta computes the risk of an asset, based on the assumption that investors in that asset are exposed to all risk in the asset rather than just the non-diversifiable or market risk.

Un-levered Beta	Un-levered Beta = Levered Beta / (1 + (1 - tax rate) (Debt/Equity Ratio))	Beta of the assets or businesses that a firm is invested in. As a consequence, is also often labelled as the asset beta of a firm.	The un-levered beta for a firm reflects the beta of all of the investments that a firm has made (including cash). If this is obtained from a regression of the stock against the market, it will reflect the business mix over the period of the regression. If it is computed based upon the business mix of the company (see Bottom-up Beta), you gain much more flexibility. This is the appropriate number to start with if you are trying to estimate a cost of equity for use with net income (which includes the income from cash).
Un-levered beta corrected for cash	Un-levered Beta/ (1 - Cash/ (Market Value of Equity + Market Value of Debt))	Beta of operating assets that a firm is invested in. We are excluding cash and assuming that the beta of cash is zero.	This un-levered beta reflects only the operating assets of the firm. It is the appropriate number to use (as a starting number) if you are trying to compute a cost of equity for a cost of capital computation.
Value/ Book	(Market Value of Equity + Market Value of Debt)/ (Book value of Equity + Book Value of Debt) See Enterprise Value/ Invested Capital	Market's assessment of the value of the assets of a firm as a multiple of the accountant's estimate of the same value.	The key difference between this multiple and the EV/Invested Capital multiple is that cash is incorporated into both the numerator and denominator. If we make the assumption that a dollar in cash trades at close to a dollar, this will have the effect of pushing Value/Capital ratios closer to one than EV/Invested Capital.
Value/EBITDA	See Enterprise Value/EBITDA		
Value/Sales	See Enterprise		

	Value/Sales		
Variance in equity values	Standard deviation in equity value ² (See Standard deviation in equity value)	Variation over time in market value of equity	Variance in equity value is usually computed using either returns or the ln(price). The variance, if computed with weekly or monthly returns, can be annualized by multiplying by 52 or 12.
Variance in firm values	Standard deviation in firm value ² (See Standard deviation in firm value)	Variation over time in market value of firm (debt + equity)	Since the market value of debt is usually difficult to obtain, analysts often use book value of debt in conjunction with the market value of equity to obtain firm value over time