

Financial Ratio and Excel Function Reference Guide

INCOME STATEMENT ANALYSIS

(Profitability and efficiency indicators)

(* indicate that average balances are usually used to calculate the ratio, i.e. of opening and closing balances)

Term/Ratio	Definition or Use	Calculation	Target Benchmark
Gross Profit Margin	Difference between purchase and/or conversion costs and the selling price.	Gross Profit/Sales	Varies considerably by industry and volume. 40% or more is generally good.
EBITDA Margin	For evaluating cash flow flow through.	EBITDA/Sales	Varies considerably by industry. 15% or more is good.
Operating Margin	For evaluating earnings flow through from continuing operations.	Operating Income/Sales	Varies considerably by industry. 10% or more is good.
Net Margin	For evaluating bottom line earnings flow through to the shareholder.	Net Earnings/Sales	Varies considerably by industry. 5% or more is good.
Return on Equity	Compares bottom line earnings to the amount of equity in the company as a proxy of "original" shareholder return.	Net Earnings/Shareholders Equity*	10% should be the minimum for large, stable companies. 18% minimum for small, private companies.
Return on Assets	Compares bottom line earnings to assets to eliminate financial leveraging differences between companies.	Net Earnings/Total Assets	8% is a good target.
Return on Capital Employed	More pure way of comparing operating returns without financing considerations.	NOPAT/Capital Employed*	WACC is a good target for comparison; 10% or higher.
Earned Value Added	The amount of excess earnings over and above a notional cost of capital charge.	NOPAT-Notional Cost of Capital where, Notional Cost of Capital = Capital Employed x WACC)	Positive number indicates the creation of shareholder value, a negative number the destruction of shareholder value.

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BALANCE SHEET ANALYSIS

(Liquidity and leverage indicators)

Term/Ratio	Definition or Use	Calculation	Target Benchmark
Current Ratio	Evaluates short term liquidity position.	Current Assets/Current Liabilities	Min 1.3:1 Ideal 2:1 or more
Quick Ratio	The most conservative view of very short term liquidity.	(Current assets- Prepaids- Inventory)/Current Liabilities	Depends on the business. 0.7:1 is fine.
Capitalization Ratio	Evaluates the degree of financial leverage in the business (i.e. how much debt is used to finance the business).	Funded Debt/Capital Employed Where, Capital Employed is your Funded Debt + Equity	0.75 is high. 0.4-0.6 is fine for a mature, stable company. <0.4 for all others.
Debt to Equity Ratio	Evaluates the degree of financial leverage in the business (i.e. how much debt and total liabilities are in relation to equity).	Total Liabilities/Equity	1:1 is conservative. 3:1 is generally the limit.
Interest Coverage Ratio	Evaluates the company's ability to meet debt costs.	EBIT/Interest Expense	1.5 is the minimum. 5 or > is good.
Debt Service Coverage	Evaluates the company's ability to meet total debt obligations.	EBIT/(Interest Expense + Scheduled Debt Repayments)	1.3 is the minimum. 5 or > is good.
Funded Debt to EBITDA	Measure of earnings financial leverage.	Funded Debt/EBITDA	Most senior lenders will only lend up to a maximum of 2:1.
Book Value Per Share	Calculates the amount of shareholders' equity on the Balance Sheet attributable to each share outstanding .	Shareholders' Equity/No. of Shares Outstanding	Proxy for the sales of assets of the company on a going concern basis.
Tangible Book Value Per Share	Same as Book Value Per Share, only it excludes Intangible Assets as these are often illiquid and not easily financed.	(Shareholders' Equity- Intangible Assets)/No. of Shares Outstanding	A proxy for the liquidation value of the company.
Intangible Assets	Assets that you can't touch or feel, stuff like brands, trademarks, patents, customer lists and relationships... Internally generated intangible assets can be set up on the Balance Sheet if they meet certain criteria.		

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Goodwill	Represents the excess cash flow earned over and above the return generated on the other recorded tangible and intangible assets. Goodwill only gets recorded on the Balance Sheet during a business combination (i.e. an acquisition). Internally generated goodwill is NOT recorded on the Balance Sheet.
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CASH FLOW ANALYSIS

(Coverage and cash flow indicators)

Term/Ratio	Definition or Use	Calculation	Target Benchmark
Operating Cash Flow	Cash flow from operations and changes in working capital.	Indirect Method starts with net earnings and then: 1. Adjusts for non-cash charges on the Income Statement 2. Adjusts for incremental changes in working capital	Operating cash flow should be higher than net earnings. Watch for changes in working capital that outpace changes in earnings.
Investing Cash Flow	Cash flow from investing activities. Evaluate how the company is spending capital to sustain or grow the business.	+Proceeds from the sale of assets or other lines of business -capital expenditures and cash acquisitions of investments in other businesses	Situation specific, but compare Depreciation to Capital Expenditures to assess whether the company is growing capacity or deferring capital.
Financing Cash Flows	Cash Flows from financing activities. Evaluate how the Executives and the Board is allocating Free Cash Flow.	+Debt issuances +Share issuances -Debt repayments -Share repurchases -Dividends	Situation specific.
Maintenance Capex	Capital expenditures that sustain the existing capacity of the business.	Sometimes hard to identify, assume maintenance unless otherwise disclosed.	Compare against depreciation. A lower spend might indicate deferred capital spending.
Growth Capex	Capital expenditures that grow the operating capacity of the company.	New plants or stores, business acquisitions.	The goal is to make accretive investments. I.e. increases Free Cash Flow and EPS in the future.
Unlevered Free Cash Flow	Calculates the amount of cash available for	+Operating cash flow	If you used an unlevered cash flow

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Levered Free Cash Flow	both debt and equity stakeholders. It's useful for valuation and investment analysis as it separates the operating analysis from financing analysis.	+Interest expense (net of tax) <u>-Maintenance Capex</u> =Unlevered Free Cash Or, EBITDA-working capital-capex	in your analysis, the appropriate discount rate is your WACC.
	Calculates the amount of cash flow remaining for shareholders. This represents "excess cash flow" from the business over which the Executive and Boards must make capital allocation decisions.	+Operating Cash Flow <u>-Maintenance Capex</u> <u>-Debt Repayments</u> =Levered Free Cash Flow	If you used this cash flow in investment or valuation analysis, the appropriate discount rate is the shareholders' expectation of return.

INVESTMENT ANALYSIS

(Valuation and market value indicators)

Term/Ratio	Definition or Use	Calculation	Target Benchmark
P/E Ratio	Used as a valuation rule of thumb to compare different companies.	Current Stock Price/EPS EPS can either be on a TTM (trailing twelve months) or a Forward basis using analyst estimates.	P/E's below 10 are generally cheap. The S&P has a long term historical average P/E Ratio of 18. The higher the P/E, the greater the expectation of growth (or overvaluation).
Earnings Yield (E/P Ratio)	This is the inverse of the P/E ratio and converts earnings in a percentage to give you sort of a market-based Return on Equity calculation.	EPS/Current Stock Price	10% is the starting point for a NO growth business. Growth companies will be lower than this.
PEG Ratio	This ratio is used to evaluate the valuation against the expected growth rate to assess valuation.	P/E Ratio/Growth Rate	A PEG Ratio>1 suggests an overvaluation, a PEG Ratio<1 suggests an undervaluation.

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Term/Ratio	Definition or Use	Calculation	Target Benchmark
Dividend Yield	Calculates the investors' income return based on the current trading price.	Dividend Per Share/Current Stock Price	1-4% is common for most blue chip stocks. Keep in mind many blue chip companies aim to increase their dividend by 5-10% each year.
Dividend Coverage Ratio	Calculates how safe the dividend is, whether it's at risk of a cut, or alternatively likely to be raised.	Dividend Per Share/Current Stock Price	Stocks paying out more than 90% of their earnings are at greatest risk of cutting their dividend. 30-90% Is common depending on the growth. Less than 30% often leaves room for a dividend hike.
Enterprise Value	The value of the business on a debt free basis. Often used in acquisitions of assets.	Market Capitalization + Value of Debt	Think of it kind of like the value of assets. It allows the acquirer to separate financing decisions.
EBITDA Multiple	Another common valuation metric that is often used for a variety of purposes.	Enterprise Value/EBITDA	A rule of thumb is that a business is worth 8 X as a starting place and you adjust upward or downward from there for the specific circumstances.
Price to Book Ratio	Compares the premium or discount inherent in the stock price relative to the book value of equity as reported in the Financial Statements.	Market Capitalization/Book Value of Equity	A good metric to use to quantify the inherent goodwill in the business when it's >1. When it's <1 may imply a low valuation or solvency concerns.

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Term/Ratio	Definition or Use	Calculation	Target Benchmark
Price to Sales Ratio	Generally useful for companies that have not yet achieved profitability yet, i.e. early stage growth companies.	Market Capitalization/Sales	Rule of thumb valuation ratio with highly variable application.
Beta	Measure of volatility	Covariance between the return on a security and the market returns/ Variance on market returns	A Beta of 1 implies that the stock is well correlated to movements in the overall stock market. High betas imply more volatility.

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EXCEL FUNCTIONS

Excel Function	Syntax	When you use it
AVERAGE	=AVERAGE(range)	To add up a range of numbers.
CHOOSE	=CHOOSE(option to pick, option 1, option 2, option 3...)	The choose function is really handy when you want to set up a “switch” in an Excel model. For example, if you have 6 sets of assumptions, you could use a CHOOSE function to update the model dynamically just by selecting which set of assumptions you want to run.
COUNT	=COUNT(range)	To count the number of items in a given range
COUNTIF	=COUNTIF(range, criteria)	To only count items in a given range that meet a given criteria.
IF	=IF(condition, if true give me this, if false give me this)	To make your model and analysis dynamic (which means having an ability to update in real time), the use of this common logic function is very common. It allows you to consider two possibilities. If you use an IF function within an IF function, you can consider three possibilities (though I wouldn't recommend use IF in the same formula more than twice).
INTRATE	=INTRATE(settlement date, maturity date, investment, amount received at maturity)	Useful for calculating the interest you will receive or borrow on short term basis when transacted at a discount.
IRR	=IRR(range)	To determine the internal rate of return for a range of cash flows. The first cash flow is assumed to happen at time zero.
MAX	=MAX(range)	To determine the maximum value in a range of cells.
MIN	=MIN(range)	To determine the minimum value in a range of cells.
NPV	=NPV(discount rate, range)	To determine the present value of a stream of cash flow.

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		Remember that Excel sees each column of cells as separate years.
PMT	=PMT(interest rate, number of periods, - present value, [future value], [1 beg of year; 0 end of year])	To calculate the payment based on a constant stream of payments and/or a [future sum of money].
PV	=PV(interest rate, number of periods, payment [future value], [1 beg of year; 0 end of year])	To calculate the present value of a stream of cash flow (payment) and/or a [future sum of money].
RATE	=RATE(number of periods, payment, present value, [future value], [1 beg of year; 0 end of year])	To calculate the interest rate of a stream of cash flow and/or a [future sum of money].
ROUND	=ROUND(value, number of digits)	To round numbers off. Use a positive number to add decimal places. Use a negative number to round for nominal, thousands, or millions.
SUM	=SUM(range)	To add up a range of numbers. Used all over the place.
SUMIF	=SUMIF(sum range, criteria)	To add up numbers in a given range that meet a certain criteria.
XIRR	=XNPV(discount rate, value range, date range)	To calculate the precise net present value by attaching the cash flow amounts to specific dates. Very helpful when you have off calendar cash flows or periods that are less than annual.
XNPV	=XIRR(value range, date range)	To calculate the precise internal rate of return by attaching the cash flow amounts to specific dates. Very helpful when you have off calendar cash flows or periods that are less than annual.