Introduction

The purpose of this handout is to provide students with the formulae and simple explanations of the basic financial ratios they need to know to attempt questions on their exams.

This handout was originally created in April 2016 and included more in-depth examples to assist in student comprehension. However, due to unfortunate time constraints most of that information has been removed in the interest of expediency.

That original handout is still available.

Note

Unlike other handouts that have since been created this handout does not contain practice questions. Students will be given questions on a separate handout.

Categories of ratios

There are three (3) categories of ratios with which students are expected to be familiar at this level:

- 1.) Profitability,
- 2.) Liquidity, and
- 3.) Activity/Efficiency

Profitability

This refers to a business's ability to generate profit. It is an important measure of a business's financial performance because earning a profit is the major reason for most business ventures. These ratios tell us about different aspects of a business's profitability.

	Name of Ratio	Formula	What this ratio tells us
1.	Gross Margin	$\frac{Grossprofit}{NetSales} \times \frac{100}{1} = x\%$	The % of every sales dollar that remains after paying COGS.
2.	Operating Expense Margin	$\frac{Expenses}{Net Sales} \times \frac{100}{1} = x\%$	The % of each sales dollar that goes to covering non-trading expenses.
3.	Net Margin	$\frac{Net profit}{Net Sales} \times \frac{100}{1} = x\%$	The % of each sales dollar that remains after all expenses are paid.
4.	Return on Capital Employed \overline{C}	$\frac{Net \ profit}{apital \ Employed} \times \frac{100}{1} = x\%$	The % return/"interest" earned by the owner's invested capital.

* There is a ratio called the "mark-up" which is Gross profit ÷ Cost of Goods sold which will be discussed at another time.

Imagine you are the owner of a business and that your goal is to make the maximum profit possible while maintaining ethically and socially responsible business practices. In this case, you would rather see higher values than lower values for ratios 1 and 3 because these would mean that there is more left out of every sales dollar for you to enjoy **after covering your expenses**.

For example, if your net margin was 10% in 2014 and your sales figure was \$250,000, this would mean that you had \$25,000 left over after covering your expenses. However, what if it was 20% or 30%? You would have had more money left for yourself.

With regard to ratio 2 (the expense margin), you would rather this be lower than higher. For example, if your expense margin was 50% of your sales (\$250,000) this means that your expenses totaled \$125,000. You might rather have an expense margin of 30% or 20% because this would mean lower expenses and therefore a higher profit for you to enjoy.

The return on capital employed (ROCE) is a very important ratio as it measures the percentage return/interest that the owner's invested (employed) capital earns.

It is used as a comparison with the interest rates or returns on other investment opportunities to see if the owner's capital is earning a reasonable rate of return in the business or if he/she should invest his/her capital elsewhere.

Consider if you invested \$100,000 in your own business and the profit you earn is \$10,000 this would give a ROCE of 10%. However, in your research you see an alternative investment online that earned 12.5% and another that earned 20% in the same period. You may consider that had you invested your capital in these other items you would have earned more money in the same period of time. As a result you may choose to close your business and put your money in these other investments to earn a higher return.

If however you examine other investments' returns and find that most of them are within 5 – 8% for the same period then you would consider that your investment in your own business was more profitable than these others, and leave your money in your own company.

Liquidity

This word has a couple of meanings in the context of accounting. It can refer to: -

- the ease with which an asset can be converted to cash, or
- whether or not an entity can repay its short-term obligations (current liabilities) with its current assets.

For the purpose of our analysis we will be focusing on the latter.

The ratios which you have to know are: -

	Name of Ratio	Formula	What this ratio tells us
1.	Current ratio	<u>Current assets</u> Current Liabilities = x: 1	How many \$ of current assets exist to pay off every \$1 of current liabilities.
2.	Quick ratio (acid-test)	$\frac{Current\ assets - Stock}{Current\ Liabilities} = x:1$	A stricter test of liquidity which omits inventory from consideration.
3.	Net working capital	Current assets – current liabilities	This is not a ratio , it is simply the net \$ difference between the two items.

Let's examine the balance sheet extract on the next page to see an example of the calculation of these ratios.

Liquidity (continued)

Example



Current ratio:	The current ratio above shows that the business has \$2.00 of current assets to pay off even \$1.00 of current liabilities; that is to say, assuming it can convert all its current assets to cash, it can pay off all of its current liabilities and still have money left over.	ry to
	It can thus be said that the business is liquid or in a favorable liquidity position.	
Note:	The optimal value for this ratio depends on what industry the company operates in, as a certain cases a value that may be considered too low or too high in one industry may be considered acceptable in other cases.	in be
	For now we'll say that the current ratio should lie between 1.25:1 and 2.00:1.	
	Be mindful of course that these values may change depending on which teacher you as or which textbook or website you read.	sk
Quick ratio:	This ratio is considered to be a tougher assessment of liquidity as it omits inventory from consideration.	m
	The reason it does this is because stock is never bound to be sold and therefore removir it from the calculation gives a sort of worst case scenario in the liquidity assessment. The value of \$1.50 : 1 is favorable as it shows the business can still pay off is current liabilities with its current assets and have money left over. For now once this ratio is above 1:1 it acceptable.	ng he es is
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Efficiency/Activity

Efficiency refers to how well a given level of resources is being used in the performance of a task, or how well a task is being performed in terms of time or resources.

These ratios can help give insight into how well the company is managing its resources or performing its operations.

Because there are variations and or sub-calculations in each of these ratios I will explain each of them on a separate page.

Name of Ra	tio	Formula	What this ratio tells us	
1. Rate of stocl	k-turnover	$\frac{Cost of Goods Sold}{Average Stock} = x times$	How many times per year the average stock was sold (turned over).	
*Note - Ave	rage stock =	opening stock + closing stock 2		
Meaning: This ratio given tells us how m		is an idea as to how well a company y times during the year it managed	⁷ is at its marketing/sales efforts as it to sell its average stock.	
Optimal value: There is no on this ratio as th		best value for this ratio. Different industries will have different norms for type of good sold will determine the volume/value of sales.		
For example, a grocery store sells thousands of items on a daily basis whereas a dealership may sell between 10 – 20 cars per month. So it is reasonable to expect that value for the rate of stockturn will be higher for the former as opposed to the latter.			ems on a daily basis whereas a car So it is reasonable to expect that the former as opposed to the latter.	
Can it be too high? Yes, if this ratio is too high it may indicate something known as overtrading. This is when a business tries to "do too much business" in an effort to increase profitability and thoug it may create a short-term boost in revenue and profit, most times maintaining such a high level of activity is not sustainable in the long run and the business may "burn-out" just a person would if they worked too hard for too long.			known as overtrading. This is where t to increase profitability and though t, most times maintaining such a high l the business may "burn-out" just as	
Can it be too low? Yes, if this ratio its sales and ev		s too low it can indicate that the busi ntually if things do no pick up the bu	iness is not doing enough to promote usiness may have to close down.	

Efficiency/Activity (continued)

	Name of Ratio	Formula	What this ratio tells us
2.	Debtors to Sales (Main ratio)	$\frac{Average \ Debtors}{Net \ Credit \ Sales} = x\%$	What fraction of the total credit sales is still outstanding.
	Debtors Turnover (The inverse of the above ratio)	$\frac{Net\ credit\ sales}{Average\ debtors} = x\ times$	How many times during the year the average debtors balance was collected.
	Debtors collection periods (variations)		
	a.) In days	365 Debtors turnover	How many days it takes to collect the average receivables.
	b.) In weeks	52 Debtors turnover	How many weeks it takes to collect the average receivables.
	c.) In months	12 Debtors turnover	How many months it takes to collect the average receivables.

Additional notes

- For the **debtors to sales ratio** it is better when this value is lower as it can indicate that the majority of the amount of money earned via credit sales was collected. Collecting cash is good as it means the company now has cash to meet its needs.
- Sometimes the question will only give you total sales and no way to determine credit sales. If so, just use the total sales even though it gives a less accurate value for the ratio.
- For the **debtors turnover** it is better if this number his higher as this shows the company is collecting its debts in a timely manner. The more often we collect cash from debtors the more cash we have available to meet our commitments.
- The same logic goes for the collection periods; we favor shorter collection periods rather than longer ones.
- **However**, we should be mindful that if our competition is offering longer credit periods than we are then our customers may start purchasing from them instead of us. A balance must be maintained.

Efficiency/Activity (continued)

Name of Ratio	Formula	What this ratio tells us
 Creditors to purchases (Main ratio) 	$\frac{Average\ Creditors}{Net\ Credit\ Purchases} = x\%$	What fraction of the total credit purchases is still payable.
Creditors Turnover (The inverse of the above ratio)	$\frac{Net\ credit\ purchases}{Average\ Creditors} = x\ times$	How many times during the year the average creditors balance was repaid.
Creditors payment periods(variations)		
1. In days	365 Creditors turnover	How many days it takes to repay the average payables balance.
2. In weeks	52 Creditors turnover	How many weeks it takes to repay the average payables.
3. In months	12 Creditors turnover	How many months it takes to repay the average payables.

Additional notes

- For the **creditors to purchases ratio** it is better when this value is lower as it can indicate that the amount of owed from credit purchases was repaid. Timely repayments help us continue to get credit in the future.
- Sometimes the question will only give you total purchases and no way to determine credit purchases. If so, just use the total purchases figure even though it gives a less accurate value for the ratio.
- For the **creditors turnover** it is better if this number his higher as this shows the company is repaying its debts in a timely manner. We do not want it to be too high as this could indicate that we are not taking advantage of credit terms and using up our cash here when it may be better employed elsewhere.
- The same logic goes for the payment periods; we favor shorter payment period rather than longer ones.
- **However**, we should be mindful that we need to balance cash inflows with outflows so as not to end up in a deficit or have to borrow money and incur interest charges.

Limitations of ratio analysis

- 1. Ratios by themselves are simply the relationship between the two variables in the formula. While they may indicate that a problem exists, more information and investigation is often needed to ascertain **why** the issue exists and how it may be fixed.
- 2. Ratios are calculated on past/historic figures and the past is not necessarily a good predictor of future performance. Other information should be considered in assessing the future prospects of the business.
- 3. Comparisons using ratios must be done very carefully especially when it is being done between/among companies in different industries. If proper care is not exercised when doing comparisons then the conclusions drawn may be worthless.

Other information that can assist in analysis includes:

- Industry averages
- The company's planned performance ratios
- The state of the economic environment recession, boom, depression, etc.
- Changes in accounting policies
- Detailed internal accounting information not seen in the published financial statements
- Any significant non-financial occurrences theft, natural disasters, new discoveries or innovations

The above list is not exhaustive. Many other factors exist that can be considered in conjunction with the ratios.

End of Handout