



Quantitative Methods in Business Bogdan Werth

Some Words Of Wisdom

- Multiple-choice test at the end of the course.
- Quantitative methods & analysis will chase you throughout your whole degree!
- Even worse... it won't let you go in your job either (QM is analyst's best friend ☺).
- You are lucky having me as a tutor 🍀 !
- Let's dig under the hood...

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Percentages

!\"\$\$%&()/=?
 Dude! Why do we need percentages. My life is already complicated enough without it... Tell me at least one plausible reason why should I be bothered?
 !\"\$\$%&()/=?

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Percentages (an example from real life)

- The different ways of expressing concentrations of drugs in solution, as ratios or percentages or mass per unit volume, are a potential cause of confusion that may contribute to dose errors. To assess doctors' understanding of what they signify, all active subscribers to doctors.net.uk, an online community exclusively for UK doctors, were invited to complete a multiple-choice questionnaire that explored their familiarity with solutions of adrenaline, lidocaine, atropine and their ability to calculate the correct volume to administer in clinical scenarios.
- Only **85.2%** and **65.8%** correctly identified the mass of drug in the adrenaline and lidocaine solutions ... only **65.5%** identified the correct volume of atropine.

Source: <http://www.jrnm.org/cgi/content/full/4/97/380>

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Percentages & Ratios (the very basics)

To understand how percentage works let's talk about piece of cake first...

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Percentages

Look at the two shapes below. In each case, we need to work out what percentage of the shape is shaded.

a)

(a) In this square there are 71 squares shaded out of 100. This is $\frac{71}{100}$
71% of the shape is shaded.

b)

(b) In this rectangle there are 3 squares shaded out of 5. This is $\frac{3}{5} = \frac{60}{100}$
60% of the shape is shaded.

Current Ratio

- The **current ratio** is a comparison of a firm's current assets to its current liabilities.
- For example, if WXY Company's current assets are \$50,000,000 and its current liabilities are \$40,000,000, then its current ratio would be $\$50,000,000 / \$40,000,000 = 1.25$.
- The current ratio is an indication of a firm's market liquidity and ability to meet short-term debt obligations. Acceptable current ratios vary from industry to industry, but a current ratio between 1 and 1.5 is considered standard.
- If a company's current assets are in this range, then it is generally considered to have good short-term financial strength.
- If current liabilities exceed current assets (the current ratio is below 1), then the company may have problems meeting its short-term obligations.
- If the current ratio is too high, then the company may not be efficiently utilizing its current assets.

Source: wikipedia.org

Price/Earnings ratio (P/P ratio)

- The **P/E ratio** of a stock is used to measure how cheap or expensive its share price is. The lower the P/E, the less you have to pay for the stock, relative to what you can expect to earn from it.

$$P/E \text{ ratio} = \frac{\text{Price per Share}}{\text{Earnings per Share}}$$

- The price per share (numerator) is the market price of a single share of the stock.
- The earnings per share (denominator) is the net income of the company for the most recent 12 month period, divided by number of shares outstanding.
- For example, if stock A is trading at **\$24** and the Earnings Per Share for the most recent 12 month period is **\$3**, then the P/E ratio is **24/3=8**. Stock A said to have a P/E of 8 (or a multiple of 8). **Put another way, you are paying \$8 for every one dollar of earnings.**
- One reason to calculate P/Es is for investors to compare the value of stocks, one stock with another. If one stock has a P/E twice that of another stock, it is *probably* a less attractive investment.
- But be careful with comparisons (different industries)

Source: wikipedia.org