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भारतीय प्रबंध संस्थान विशाखपट्टणम  
Indian Institute of Management Visakhapatnam

# Financial Statement Analysis

Prince Doliya



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# Financial Statement Analysis

- **Data Analytics & Corporate Finance**



# Why FSA in this course ?

1. Building Block for Your “Fancy Analysis”
2. Establishing a Strong Foundation: Mastering the basics of financial statement analysis to support advanced, complex evaluations.
3. Engage with Real-World Use Cases: Share your specific use cases or financial analysis challenges with the class for relatable learning.
4. Unified Understanding for Deeper Insights: Ensuring everyone has a common foundation for comprehensive and impactful class discussions.



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What comes to your mind when I say "Financial Statement Analysis"?



# What is FSA all about ?

- To produce forecasts and valuations that help investors determine where their capital is likely to earn its highest risk-adjusted returns, a thorough financial statement analysis must follow four sequential steps:
  - 1. Business and industry analysis
  - 2. Accounting analysis
  - 3. Financial analysis
  - 4. Valuation.

- How fast is the industry growing?
- Is it stagnant or declining?
- How many competitors are there?
- Do firms compete mainly on price or differentiation?
- Is there a history of cooperative pricing or is price competition more “cut-throat”?
- What are the key economic and regulatory issues faced by companies in this industry?

1. Swot Analysis
2. Porter Five Force Framework
3. Newspaper
4. Industry Reports
5. Analyst report

### Strengths

- Extensive Network: 6,342 branches, 18,130 ATMs across India
- Strong Retail Banking: Personal loans, credit cards, savings accounts
- High Customer Satisfaction: Strong ratings, multiple awards
- Technological Integration: Robust online and mobile banking services

### Opportunities

- Corporate Banking Growth: Potential expansion in corporate sector
- Foreign Market Expansion: Leverage strong finances internationally
- Digital Transformation: Enhance customer experience, efficiency

### Weaknesses

- Limited Rural Presence: Less coverage in rural areas
- Underperforming Sectors: Certain products underperform
- Fluctuating Share Prices: Investor uncertainty due to volatility

### Threats

- Increasing Competition: Traditional and digital banks
- Economic Fluctuations: Downturns impact performance
- Cybersecurity Risks: Rising threat with more online services

## Analysis of:

- Income Statement.
- Balance Sheet,
- Cash Flow Statement,
- OCI



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# Income Statement

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# Income Statement

## *Colgate's Consolidated Statements of Income (in millions, except per share amounts)*

For the years ended December 31,	2011	2010	2009
Net sales .....	\$16,734	\$15,564	\$15,327
Cost of sales .....	7,144	6,360	6,319
Gross profit .....	9,590	9,204	9,008
Selling, general, and administrative expenses .....	5,758	5,414	5,282
Other (income) expense, net .....	(9)	301	111
Operating profit .....	3,841	3,489	3,615
Interest expense, net .....	52	59	77
Income before income taxes .....	3,789	3,430	3,538
Provision for income taxes .....	1,235	1,117	1,141
Net income including noncontrolling interests .....	2,554	2,313	2,397
Less: Net income attributable to noncontrolling interests	123	110	106
Net income attributable to Colgate-Palmolive Company	\$ 2,431	\$ 2,203	\$ 2,291
Earnings per common share, basic .....	\$ 4.98	\$ 4.45	\$ 4.53
Earnings per common share, diluted .....	\$ 4.94	\$ 4.31	\$ 4.37



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# Balance Sheet

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# Balance Sheet

**Colgate's Consolidated Balance Sheet (in millions, except per share amounts)****Exhibit 1.5**

■■■■■■■■■■

As of December 31,	2011	2010
<b>Assets</b>		
<b>Current assets:</b>		
Cash and cash equivalents .....	\$ 878	\$ 490
Receivables (net of allowances of \$49 and \$53, respectively) .....	1,675	1,610
Inventories .....	1,327	1,222
Other current assets .....	522	408
Total current assets .....	4,402	3,730
Property, plant and equipment, net .....	3,668	3,693
Goodwill, net .....	2,657	2,362
Other intangible assets, net .....	1,341	831
Deferred income taxes .....	115	84
Other assets .....	541	472
Total assets .....	<u>\$ 12,724</u>	<u>\$ 11,172</u>
<b>Liabilities and Shareholders' Equity</b>		
<b>Current liabilities:</b>		
Notes and loans payable .....	\$ 34	\$ 48
Current portion of long-term debt .....	346	561
Accounts payable .....	1,244	1,165
Accrued income taxes .....	382	272
Other accruals .....	1,700	1,682
Total current liabilities .....	3,716	3,728
Long-term debt .....	4,430	2,815
Deferred income taxes .....	252	108
Other liabilities .....	1,785	1,704
Total liabilities .....	10,183	8,355
Commitments and contingent liabilities .....	—	—
<b>Shareholders' equity</b>		
Common stock, \$1 par value (2,000,000,000 shares authorized, 732,853,180 shares issued) .....	733	733
Additional paid-in capital .....	1,336	1,132
Retained earnings .....	15,649	14,329
Accumulated other comprehensive income (loss) .....	(2,475)	(2,115)
	15,243	14,079
Unearned compensation .....	(60)	(99)
Treasury stock, at cost .....	(12,808)	(11,305)
Total Colgate-Palmolive Company shareholders' equity .....	2,375	2,675
Noncontrolling interests .....	166	142
Total shareholders' equity .....	2,541	2,817
Total liabilities and shareholders' equity .....	<u>\$ 12,724</u>	<u>\$ 11,172</u>



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# Cash Flow Statement

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For the years ended December 31,	2011	2010	2009
<b>Operating Activities</b>			
Net income including noncontrolling interests .....	\$ 2,554	\$ 2,313	\$ 2,397
Adjustments to reconcile net income including noncontrolling interests to net cash provided by operations:			
Depreciation and amortization .....	421	376	351
Restructuring and termination benefits, net of cash .....	103	86	(18)
Venezuela hyperinflationary transition charge .....		271	
Gain before tax on sales of noncore product lines .....	(207)	(50)	(5)
Stock-based compensation expense .....	122	121	117
Deferred income taxes .....	88	29	(23)
Cash effects of changes in:			
Receivables .....	(130)	40	57
Inventories .....	(130)	(10)	44
Accounts payable and other accruals .....	199	(65)	294
Other noncurrent assets and liabilities .....	54	135	136
Net cash provided by operations .....	2,896	3,211	3,277
<b>Investing Activities</b>			
Capital expenditures .....	(537)	(550)	(575)
Sale of property and noncore product lines .....	263	42	17
Purchases of marketable securities and investments .....	(356)	(308)	(289)
Proceeds from sale of marketable securities and investments .....	423	167	—
Payment for acquisitions, net of cash acquired .....	(966)	—	—
Other .....	(40)	(9)	6
Net cash used in investing activities .....	(1,213)	(658)	(841)
<b>Financing Activities</b>			
Principal payments on debt .....	(4,429)	(4,719)	(3,950)
Proceeds from issuance of debt .....	5,843	5,015	3,424
Dividends paid .....	(1,203)	(1,142)	(981)
Purchases of treasury shares .....	(1,806)	(2,020)	(1,063)
Proceeds from exercise of stock options and excess tax benefits .....	253	242	300
Net cash used in financing activities .....	(1,242)	(2,624)	(2,270)
Effect of exchange rate changes on Cash and cash equivalents .....	(53)	(39)	(121)
Net increase (decrease) in Cash and cash equivalents .....	388	(110)	45
Cash and cash equivalents at beginning of year .....	490	600	555
Cash and cash equivalents at end of year .....	\$ 878	\$ 490	\$ 600



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# Other Comprehensive Income\*

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**COLGATE-PALMOLIVE COMPANY**  
**Consolidated Statements of Comprehensive Income**  
**For the years ended December 31,**  
(Dollars in Millions)

	2016	2015	2014
Net income including noncontrolling interests	\$ 2,586	\$ 1,548	\$ 2,339
Other comprehensive income (loss), net of tax:			
Cumulative translation adjustments	(137)	(645)	(685)
Retirement plan and other retiree benefit adjustments	(109)	196	(329)
Gains (losses) on available-for-sale securities	(1)	(7)	(48)
Gains (losses) on cash flow hedges	5	2	2
Total Other comprehensive income (loss), net of tax	(242)	(454)	(1,060)
Total Comprehensive income including noncontrolling interests	2,344	1,094	1,279
Less: Net income attributable to noncontrolling interests	145	164	159
Less: Cumulative translation adjustments attributable to noncontrolling interests	(12)	(11)	(4)
Total Comprehensive income attributable to noncontrolling interests	133	153	155
Total Comprehensive income attributable to Colgate-Palmolive Company	\$ 2,211	\$ 941	\$ 1,124



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# Basic Accounting Analysis tools

- Trend/Pattern
- Ratio
- Cash Flow Analysis
- Valuation

# Horizontal Analysis

**Horizontal analysis**, also called **trend analysis**, is a technique for evaluating a series of financial statement data over a period of time.

- ◆ **Purpose** is to determine the increase or decrease.
- ◆ **Commonly applied to the**
  - ▶ balance sheet,
  - ▶ income statement, and
  - ▶ statement of change in retained earnings.

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# Horizontal Analysis

## QUALITY DEPARTMENT STORE INC.

### Condensed Balance Sheets

December 31

	2013	2012	Increase or (Decrease) during 2013	
			Amount	Percent
<b>Assets</b>				
Current assets	\$1,020,000	\$ 945,000	\$ 75,000	7.9%
Plant assets (net)	800,000	632,500	167,500	26.5%
Intangible assets	15,000	17,500	(2,500)	(14.3%)
Total assets	<u>\$1,835,000</u>	<u>\$1,595,000</u>	<u>\$240,000</u>	<u>15.0%</u>
<b>Liabilities</b>				
Current liabilities	\$ 344,500	\$ 303,000	\$ 41,500	13.7%
Long-term liabilities	487,500	497,000	(9,500)	(1.9%)
Total liabilities	<u>832,000</u>	<u>800,000</u>	<u>32,000</u>	<u>4.0%</u>
<b>Stockholders' Equity</b>				
Common stock, \$1 par	275,400	270,000	5,400	2.0%
Retained earnings	727,600	525,000	202,600	38.6%
Total stockholders' equity	<u>1,003,000</u>	<u>795,000</u>	<u>208,000</u>	<u>26.2%</u>
Total liabilities and stockholders' equity	<u>\$1,835,000</u>	<u>\$1,595,000</u>	<u>\$240,000</u>	<u>15.0%</u>

Changes suggest that the company expanded its asset base during 2013 and financed this expansion primarily by retaining income rather than assuming additional long-term debt.

# Horizontal Analysis

## QUALITY DEPARTMENT STORE INC.

Condensed Income Statements  
For the Years Ended December 31

	2013	2012	Increase or (Decrease) during 2013	
			Amount	Percent
Sales revenue	\$2,195,000	\$1,960,000	<b>\$235,000</b>	<b>12.0%</b>
Sales returns and allowances	98,000	123,000	<b>(25,000)</b>	<b>(20.3%)</b>
Net sales	2,097,000	1,837,000	<b>260,000</b>	<b>14.2%</b>
Cost of goods sold	1,281,000	1,140,000	<b>141,000</b>	<b>12.4%</b>
Gross profit	816,000	697,000	<b>119,000</b>	<b>17.1%</b>
Selling expenses	253,000	211,500	<b>41,500</b>	<b>19.6%</b>
Administrative expenses	104,000	108,500	<b>(4,500)</b>	<b>(4.1%)</b>
Total operating expenses	357,000	320,000	<b>37,000</b>	<b>11.6%</b>
Income from operations	459,000	377,000	<b>82,000</b>	<b>21.8%</b>
Other revenues and gains				
Interest and dividends	9,000	11,000	<b>(2,000)</b>	<b>(18.2%)</b>
Other expenses and losses				
Interest expense	36,000	40,500	<b>(4,500)</b>	<b>(11.1%)</b>
Income before income taxes	432,000	347,500	<b>84,500</b>	<b>24.3%</b>
Income tax expense	168,200	139,000	<b>29,200</b>	<b>21.0%</b>
Net income	<u>\$ 263,800</u>	<u>\$ 208,500</u>	<u><b>\$ 55,300</b></u>	<u><b>26.5%</b></u>

Overall, gross profit and net income were up substantially.

Gross profit increased 17.1%, and net income, 26.5%.

Quality's profit trend appears favorable.

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# Horizontal Analysis

## QUALITY DEPARTMENT STORE INC.

### Retained Earnings Statements For the Years Ended December 31

			Increase or (Decrease) during 2013	
	2013	2012	Amount	Percent
Retained earnings, Jan. 1	\$525,000	\$376,500	<b>\$148,500</b>	<b>39.4%</b>
Add: Net income	263,800	208,500	<b>55,300</b>	<b>26.5%</b>
	788,800	585,000	<b>203,800</b>	
Deduct: Dividends	61,200	60,000	<b>1,200</b>	<b>2.0%</b>
Retained earnings, Dec. 31	<u>\$727,600</u>	<u>\$525,000</u>	<u><b>\$202,600</b></u>	<u><b>38.6%</b></u>

The ending retained earnings increased 38.6%. As indicated earlier, the company retained a significant portion of net income to finance additional plant facilities.

# Vertical Analysis

**Vertical analysis**, also called **common-size analysis**, is a technique that expresses each financial statement item as a percent of a base amount.

- ◆ On an **income statement**, we might say that selling expenses are 16% of net sales.
- ◆ Vertical analysis is commonly applied to the
  - ▶ balance sheet and
  - ▶ income statement.

# Vertical Analysis

## QUALITY DEPARTMENT STORE INC.

### Condensed Balance Sheets

December 31

	2013		2012	
	Amount	Percent	Amount	Percent
<b>Assets</b>				
Current assets	\$1,020,000	55.6%	\$ 945,000	59.2%
Plant assets (net)	800,000	43.6%	632,500	39.7%
Intangible assets	15,000	0.8%	17,500	1.1%
Total assets	<u>\$1,835,000</u>	<u>100.0%</u>	<u>\$1,595,000</u>	<u>100.0%</u>
<b>Liabilities</b>				
Current liabilities	\$ 344,500	18.8%	\$ 303,000	19.0%
Long-term liabilities	487,500	26.5%	497,000	31.2%
Total liabilities	<u>832,000</u>	<u>45.3%</u>	<u>800,000</u>	<u>50.2%</u>
<b>Stockholders' Equity</b>				
Common stock, \$1 par	275,400	15.0%	270,000	16.9%
Retained earnings	727,600	39.7%	525,000	32.9%
Total stockholders' equity	<u>1,003,000</u>	<u>54.7%</u>	<u>795,000</u>	<u>49.8%</u>
Total liabilities and stockholders' equity	<u>\$1,835,000</u>	<u>100.0%</u>	<u>\$1,595,000</u>	<u>100.0%</u>

Quality is choosing to finance its growth through retention of earnings rather than through issuing additional debt.

# Vertical Analysis

## QUALITY DEPARTMENT STORE INC.

### Condensed Income Statements

For the Years Ended December 31

	2013		2012	
	Amount	Percent	Amount	Percent
Sales revenue	\$2,195,000	<b>104.7%</b>	\$1,960,000	<b>106.7%</b>
Sales returns and allowances	98,000	<b>4.7%</b>	123,000	<b>6.7%</b>
Net sales	2,097,000	<b>100.0%</b>	1,837,000	<b>100.0%</b>
Cost of goods sold	1,281,000	<b>61.1%</b>	1,140,000	<b>62.1%</b>
Gross profit	816,000	<b>38.9%</b>	697,000	<b>37.9%</b>
Selling expenses	253,000	<b>12.0%</b>	211,500	<b>11.5%</b>
Administrative expenses	104,000	<b>5.0%</b>	108,500	<b>5.9%</b>
Total operating expenses	357,000	<b>17.0%</b>	320,000	<b>17.4%</b>
Income from operations	459,000	<b>21.9%</b>	377,000	<b>20.5%</b>
Other revenues and gains				
Interest and dividends	9,000	<b>0.4%</b>	11,000	<b>0.6%</b>
Other expenses and losses				
Interest expense	36,000	<b>1.7%</b>	40,500	<b>2.2%</b>
Income before income taxes	432,000	<b>20.6%</b>	347,500	<b>18.9%</b>
Income tax expense	168,200	<b>8.0%</b>	139,000	<b>7.5%</b>
Net income	\$ 263,800	<b>12.6%</b>	\$ 208,500	<b>11.4%</b>

Quality appears to be a profitable enterprise that is becoming even more successful.

#### Helpful Hint

The formula for calculating these income statement percentages is:

$$\frac{\text{Each item on I/S}}{\text{Net sales}} = \%$$

# Vertical Analysis

Enables a comparison of companies of different sizes.

<b>Condensed Income Statements</b>				
For the Year Ended December 31, 2013				
(in thousands)				
	<b>Quality Department Store Inc.</b>		<b>Macy's, Inc.</b>	
	<u>Dollars</u>	<u>Percent</u>	<u>Dollars</u>	<u>Percent</u>
Net sales	\$2,097	<b>100.0%</b>	\$27,931,000	<b>100.0%</b>
Cost of goods sold	<u>1,281</u>	<u><b>61.1%</b></u>	<u>16,725,000</u>	<u><b>59.9%</b></u>
Gross profit	816	<b>38.9%</b>	11,206,000	<b>40.1%</b>
Selling and administrative expenses	<u>357</u>	<u><b>17.0%</b></u>	<u>8,440,000</u>	<u><b>30.2%</b></u>
Income from operations	459	<b>21.9%</b>	2,766,000	<b>9.9%</b>
Other expenses and revenues (including income taxes)	<u>195</u>	<u><b>9.3%</b></u>	<u>1,280,000</u>	<u><b>4.6%</b></u>
Net income	<u>\$ 264</u>	<u><b>12.6%</b></u>	<u>\$ 1,486,000</u>	<u><b>5.3%</b></u>





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# • Ratio Analysis

Ratio analysis of financial statement is another tool that helps identify changes in a company's financial situation.

A single ratio is not sufficient to adequately judge the financial situation of the company. Several ratios must be analyzed together and compared with prior-year ratios, or even with other companies in the same industry. This comparative aspect of ratio analysis is extremely important in financial analysis.

It is important to note that ratios are parameters and not precise or absolute measurements. Thus, ratios must be interpreted cautiously to avoid erroneous conclusions.



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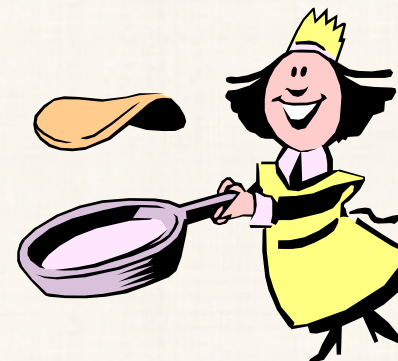
# Financial Ratios

Liquidity Ratios

Profitability Ratios

Turnover/Activity Ratios

Solvency Ratios





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# Liquidity Ratios

Liquidity ratio analysis measure how liquid the company's assets are (how easily can the assets be converted into cash) as compared to its current liabilities. The common liquidity ratio are:

- 1.Current ratio analysis
- 2.Acid test (or quick asset) ratio analysis

**Current ratio** is the most frequently used ratio to measure company's liquidity as it is quick, intuitive and easy measure to understand the relationship between the current assets and current liabilities.

It basically answers this question “How many dollars in current assets does the company have to cover each \$ of current liabilities”

$$\text{Current Ratio} = \text{Current Assets} / \text{Current Liabilities}$$


Manufacturing companies ~ High CR

Retail Sector (Walmart, BigBazar) – Lower CR

# CURRENT RATIO ANALYSIS – COLGATE PALMOLIVE

	Dec-07	Dec-08	Dec-09	Dec-10	Dec-11	Dec-12	Dec-13	Dec-14	Dec-15
<b>Assets</b>									
Current Assets									
Cash and cash equivalents	429	555	600	490	878	884	962	1,089	970
Receivables	1,681	1,592	1,626	1,610	1,675	1,668	1,636	1,552	1,427
Inventories	1,171	1,197	1,209	1,222	1,327	1,365	1,425	1,382	1,180
Other current assets	338	366	375	408	522	639	799	840	807
Total current assets	3,619	3,710	3,810	3,730	4,402	4,556	4,822	4,863	4,384
<b>Liabilities and Shareholders' Equity</b>									
Current Liabilities									
Notes and loans payable	156	107	35	48	34	54	13	16	4
Current portion of long-term debt	138	91	326	561	346	250	89	488	298
Accounts payable	1,067	1,061	1,172	1,165	1,244	1,290	1,343	1,231	1,110
Accrued income taxes	263	272	387	272	392	254	239	244	277
Other accruals	1,539	1,421	1,679	1,682	1,700	1,888	1,980	1,857	1,845
Total current liabilities	3,163	2,952	3,599	3,728	3,716	3,736	4,470	3,946	3,534
<b>Solvency Ratios</b>									
Current ratio	1.14x	1.26x	1.06x	1.00x	1.18x	1.22x	1.08x	1.23x	=K12/K28

**Current Ratio = Current  
Assets / Current Liabilities**



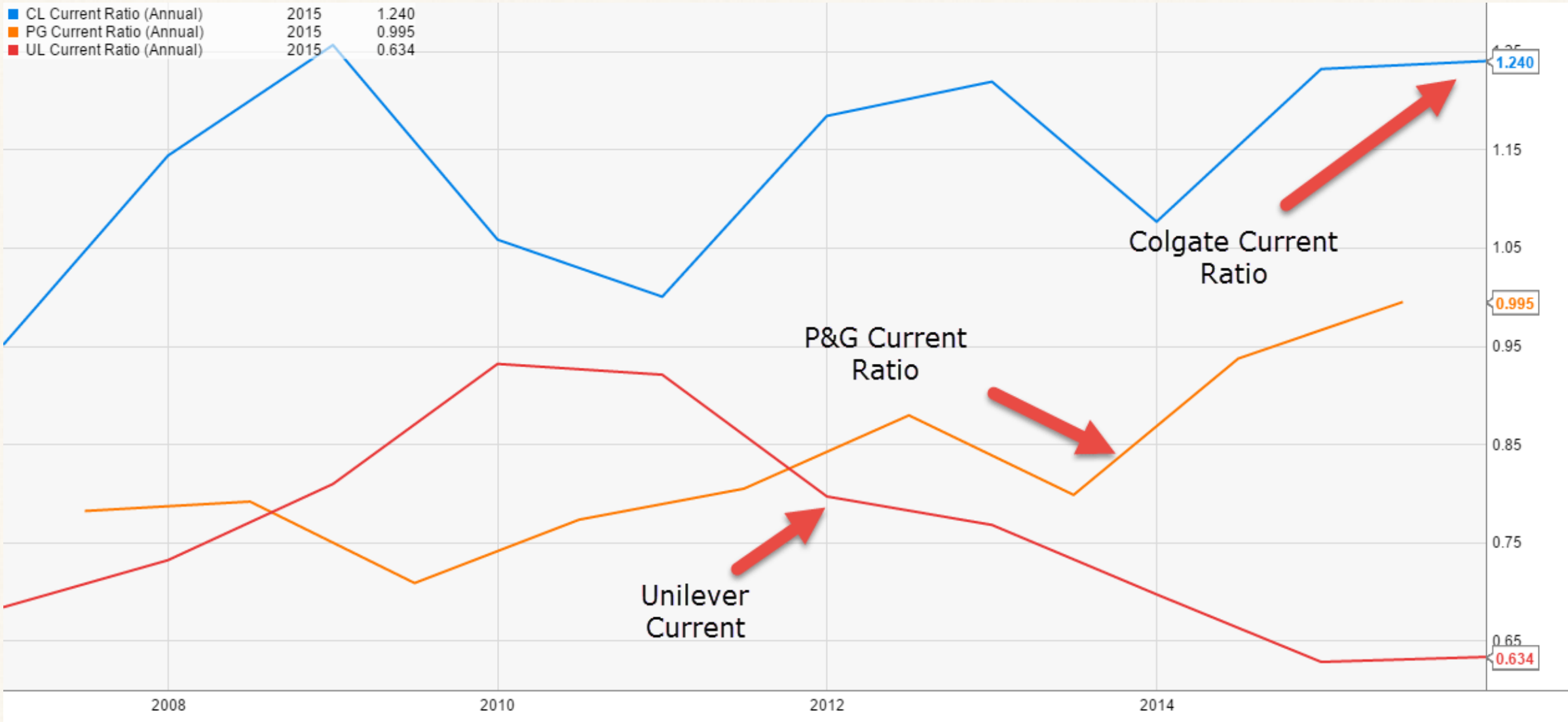
Colgate has maintained a healthy current ratio of greater than 1 in the past 10 years.

Current ratio of Colgate for 2015 was at 1.24x. This implies that current assets of Colgate are more than current liabilities of Colgate.

However, we still need to investigate on the quality and liquidity of Current Assets. We note that around 45% of current assets in 2015 consists of Inventories and Other Current Assets. This may affect the liquidity position of Colgate.

When investigating Colgate's inventory, we note that majority of the Inventory consists of Finished Goods (which is better in liquidity than raw materials supplies and work-in-progress).

# Comparison of Current Ratio of Colgate's vs P&G vs Unilever





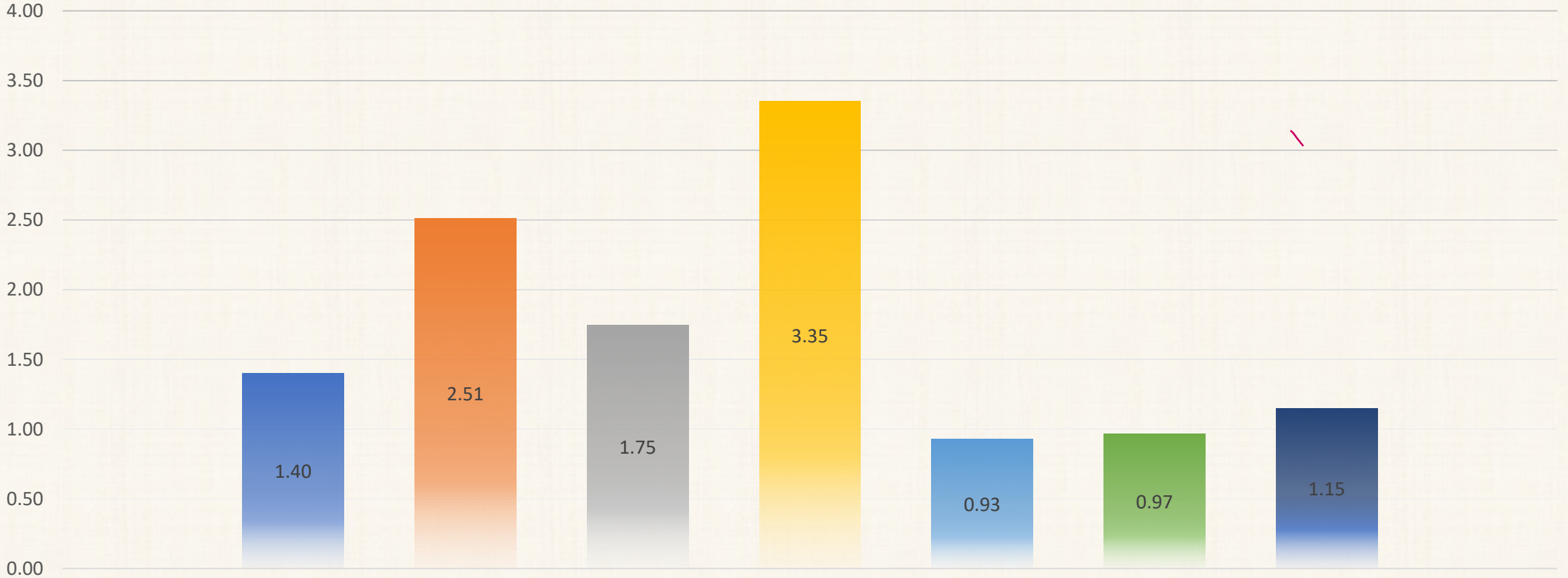
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# Current Ratio- Industry Analysis

## AUTO SECTOR



Current Ratio  
(x)

- Mahindra & Mahindra Limited
- Bajaj Auto Limited
- Hero MotoCorp Limited
- Eicher Motors Limited
- Tata Motors Limited
- TVS Motor Company Limited
- Maruti Suzuki India Limited

# WHAT IS QUICK RATIO?

- Sometimes current assets may contain huge amounts of inventory, prepaid expenses etc. This may skew the current ratio interpretations as these are not very liquid.
- To address this issue, if we consider the only most liquid assets like **Cash and Cash equivalents and Receivables**, then it should provide us with a better picture on the coverage of short term obligations.
- This ratio is known as Quick Ratio or the Acid Test.
- The rule of thumb for a healthy acid test index is 1.0.

$$\text{Quick Ratio} = \frac{\text{Current Assets} - \text{Stock} - \text{Prepaid-Expenses}}{\text{Current Liabilities} - \text{B.O}}$$

# Interpretation of Q.R.

Low quick ratios in businesses that sell on cash basis (for example, restaurants, supermarkets etc). In these businesses there are no receivables, however, there maybe a huge pile of inventory.

Construction Companies – A/R takes much time to convert into cash

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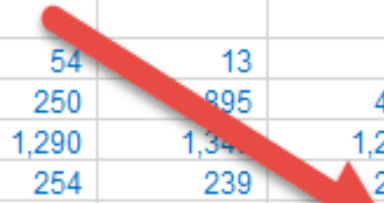
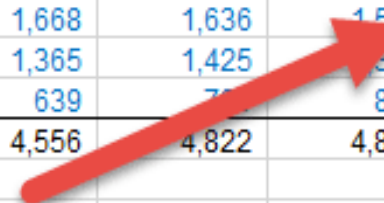
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# QUICK RATIO ANALYSIS – COLGATE PALMOLIVE

	Dec-07	Dec-08	Dec-09	Dec-10	Dec-11	Dec-12	Dec-13	Dec-14	Dec-15
<b>Assets</b>									
Current Assets									
Cash and cash equivalents	429	555	600	490	878	884	962	1,089	970
Receivables	1,681	1,592	1,626	1,610	1,675	1,668	1,636	1,552	1,427
Inventories	1,171	1,197	1,209	1,222	1,327	1,365	1,425	1,382	1,180
Other current assets	338	366	375	408	522	639	711	840	807
Total current assets	3,619	3,710	3,810	3,730	4,402	4,556	4,822	4,863	4,384
<b>Liabilities and Shareholders' Equity</b>									
Current Liabilities									
Notes and loans payable	156	107	35	48	34	54	13	16	4
Current portion of long-term debt	1,411	1,911	1,800	1,612	1,611	250	895	488	298
Accounts payable	1,067	1,061	1,172	1,165	1,244	1,290	1,341	1,231	1,110
Accrued income taxes	263	272	387	272	392	254	239	294	277
Other accruals	1,539	1,421	1,679	1,682	1,700	1,888	1,980	1,917	1,845
Total current liabilities	3,163	2,952	3,599	3,728	3,716	3,736	4,470	3,946	3,534
<b>Solvency Ratios</b>									
Current ratio	1.14x	1.26x	1.06x	1.00x	1.18x	1.22x	1.08x	1.23x	1.24x
Quick ratio	.67x	.73x	.62x	.56x	.69x	.68x	.58x	.67x	=(K8+K9)/K28

**Quick Ratio = (Cash & Cash Equivalents + Receivables) / Current Liabilities**



.67x = (K8+K9)/K28

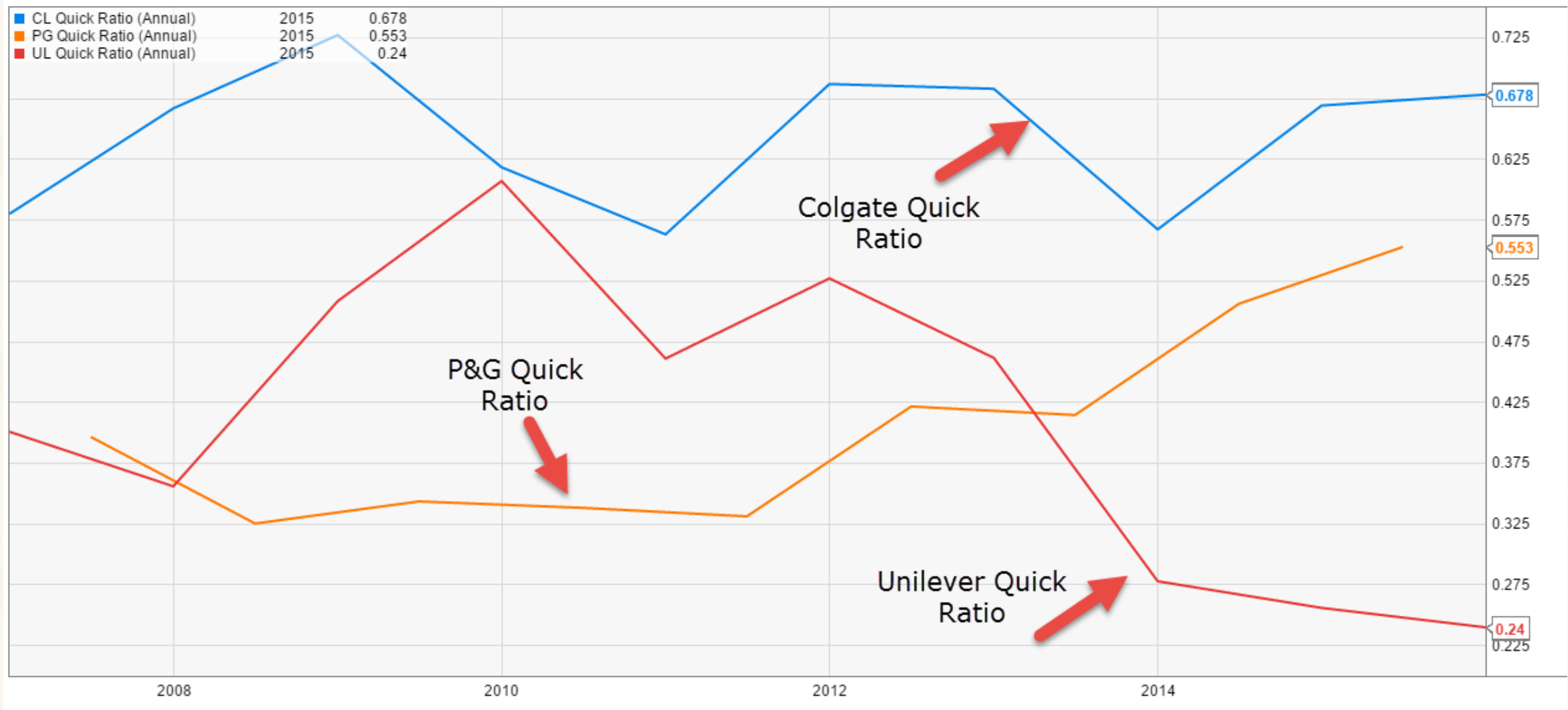


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# Comparison of Quick Ratio of Colgate's vs P&G vs Unilever



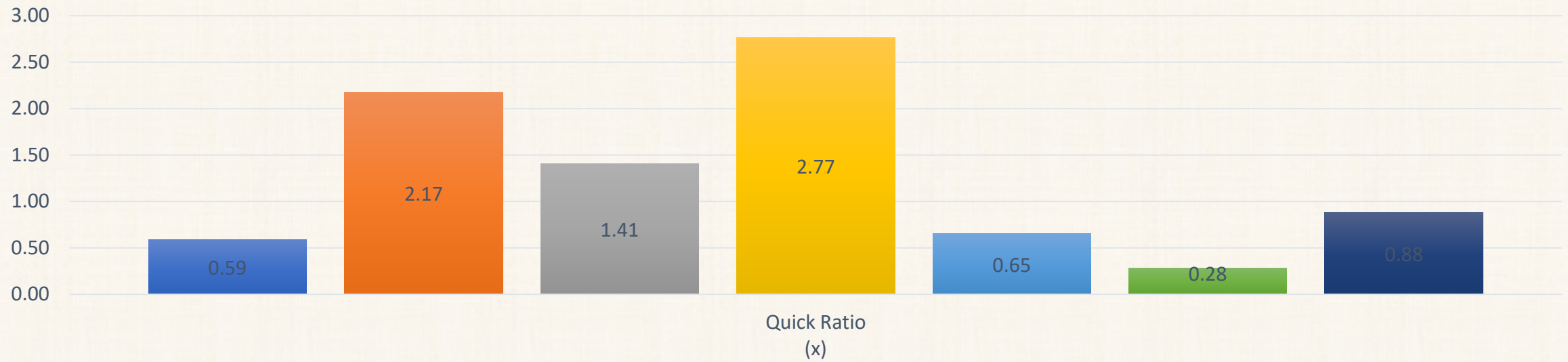


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## Quick Ratio



- Mahindra & Mahindra Limited
- Bajaj Auto Limited
- Hero MotoCorp Limited
- Eicher Motors Limited
- Tata Motors Limited
- TVS Motor Company Limited
- Maruti Suzuki India Limited

- Net Sales
- Return on Funds invested

## 1. GROSS PROFIT MARGIN?

$$\begin{aligned}\text{Gross Margin Formula} &= (\text{Sales} - \text{Costs of Goods Sold}) / \text{Net Sales} \\ &= \text{Gross Profit} / \text{Net Sales}\end{aligned}$$

- Gross Margin can vary drastically between industries. For example, **digital products sold online will have extremely high Gross Margin as compared to a company that sells Laptop.**
- Gross margin is extremely useful when we look at the historical trends in the margins.
- If the Gross Margins has **increased historically**, then it could be either because of **price increase or control of direct costs.**
- However, if the Gross margins show a **declining trend**, then it may be because of increased competitiveness and therefore resulting in decreased sales price.



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## Income Statement (Consolidated)

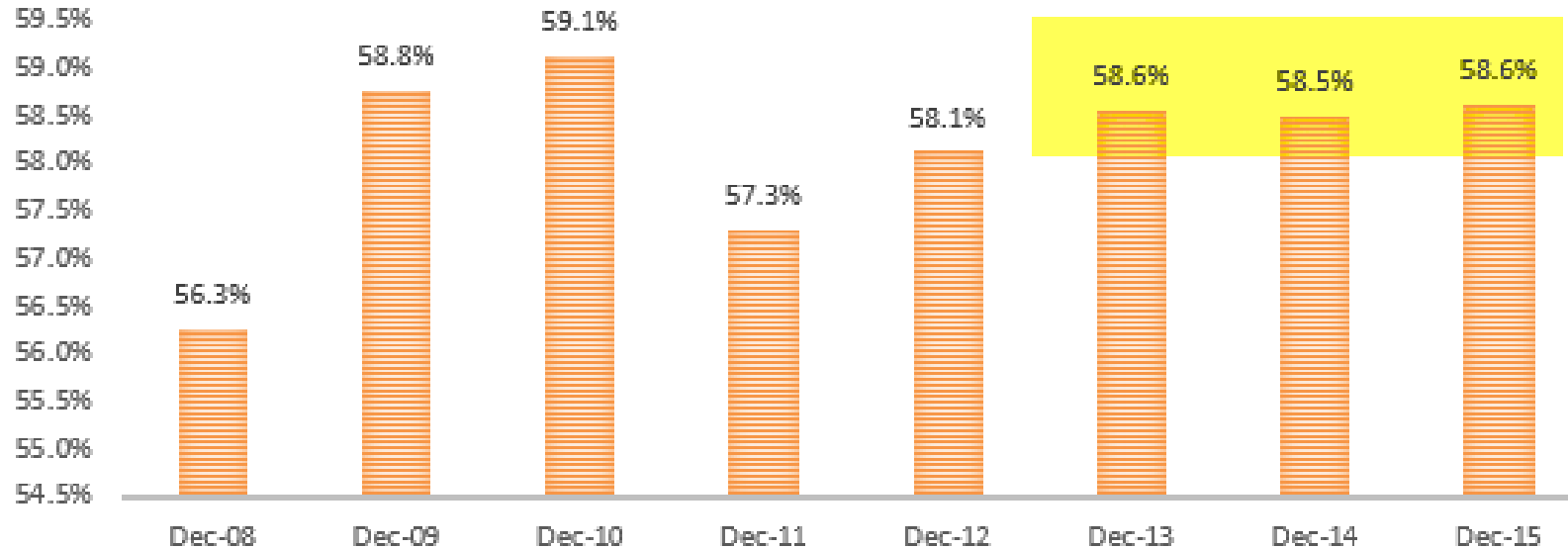
(\$ in Million Except Per Share Amounts)	Dec-07	Dec-08	Dec-09	Dec-10	Dec-11	Dec-12	Dec-13	Dec-14	Dec-15
Net sales	13,790	15,330	15,327	15,564	16,734	17,085	17,420	17,277	16,034
Cost of sales	6,043	6,704	6,319	6,360	7,144	7,153	7,219	7,168	6,635
Gross profit	7,747	8,626	9,008	9,204	9,590	9,932	10,201	10,109	9,399

**Gross Margin Formula =**  
**= Gross Profit / Sales**

## Vertical Analysis

	Dec-07	Dec-08	Dec-09	Dec-10	Dec-11	Dec-12	Dec-13	Dec-14	Dec-15
Net sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of sales	43.8%	43.7%	41.2%	40.9%	42.7%	41.9%	41.4%	41.5%	41.4%
Gross profit	56.2%	56.3%	58.8%	59.1%	57.3%	58.1%	58.6%	58.5%	=K8/K\$6

## GROSS PROFIT MARGIN





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**Shipping and handling costs** may be reported either in Cost of Sales or Selling General and Admin Expenses. **Colgate has however, reported these costs as a part of Selling General and Admin Expenses.** If such expenses are included in Cost of Sales, then the Gross margin of colgate would have decreased by 770 bps from 58.6% to 50.9% and decreased by 770bps and 750 bps in 2014 and 2013 respectively.

# Operating Profit Margin (Operating ability)

Operating profit or Earnings Before Interest and Taxes (EBIT) margin measures the rate of profit on sales after operating expenses. Operating income can be thought of as the “bottom line” from operations.

Operating Profit Margin = EBIT / Net Sales

or = EBITDA/Net Sales (Assume, Dep as Non-operating)



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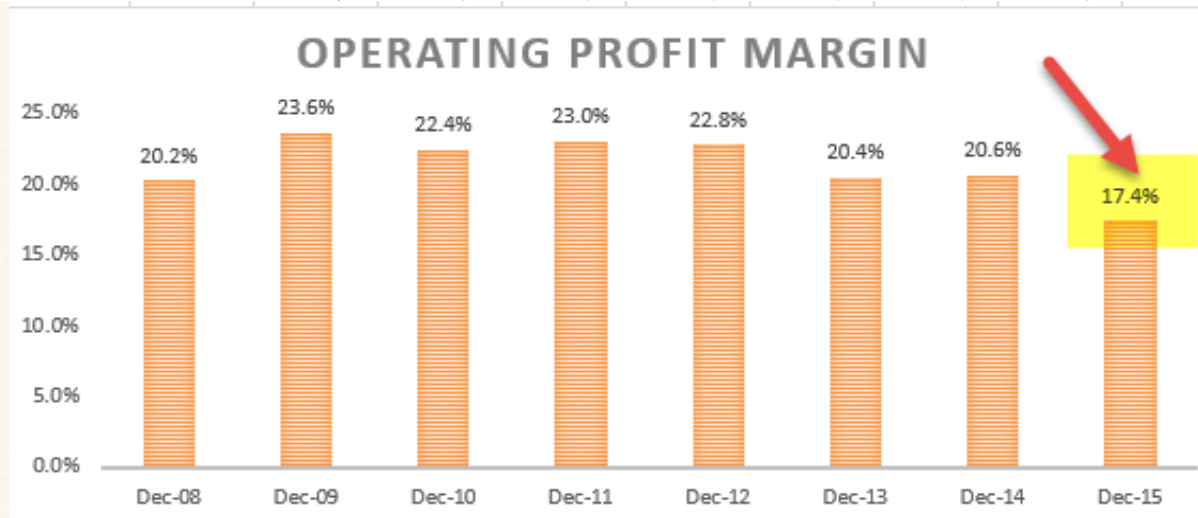
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(\$ in Million Except Per Share Amounts)	Dec-07	Dec-08	Dec-09	Dec-10	Dec-11	Dec-12	Dec-13	Dec-14	Dec-15
Net sales	13,790	15,330	15,327	15,564	16,734	17,085	17,420	17,277	16,034
Cost of sales	6,043	6,704	6,319	6,360	7,144	7,153	7,219	7,168	6,635
Gross profit	7,747	8,626	9,008	9,204	9,590	9,932	10,201	10,109	9,399
Selling, general and administrative expenses	4,973	5,422	5,282	5,414	5,758	5,930	6,223	5,982	5,464
Other (income) expense, net	54	103	111	301	(9)	113	422	570	62
Charges for Venezuela Accounting Change									1,084
<b>EBIT</b>	<b>2,720</b>	<b>3,101</b>	<b>3,615</b>	<b>3,489</b>	<b>3,841</b>	<b>3,889</b>	<b>3,558</b>	<b>3,557</b>	<b>2,789</b>
<b>Vertical Analysis</b>	Dec-07	Dec-08	Dec-09	Dec-10	Dec-11	Dec-12	Dec-13	Dec-14	Dec-15
Net sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of sales	43.8%	43.7%	41.2%	40.9%	42.7%	41.9%	41.4%	41.5%	41.4%
Gross profit	<b>56.2%</b>	<b>56.3%</b>	<b>58.8%</b>	<b>59.1%</b>	<b>57.3%</b>	<b>58.1%</b>	<b>58.6%</b>	<b>58.5%</b>	<b>58.6%</b>
Selling, general and administrative expenses	36.1%	35.4%	34.5%	34.8%	34.4%	34.7%	35.7%	34.6%	34.1%
Other (income) expense, net	0.4%	0.7%	0.7%	1.9%	-0.1%	0.7%	2.4%	3.3%	0.4%
Operating profit	<b>19.7%</b>	<b>20.2%</b>	<b>23.6%</b>	<b>22.4%</b>	<b>23.0%</b>	<b>22.8%</b>	<b>20.4%</b>	<b>20.6%</b>	<b>17.4%</b>
Interest expense, net	1.1%	0.6%	0.5%	0.4%	0.3%	0.1%	-0.1%	0.1%	0.2%

**Operating Profit Margin**  
= EBIT / Sales

= K13 / K\$6





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# Venezuela's Discontinuation: What Impact on Colgate's Earnings?

- Colgate derives more than 75% income from outside of United States. The company is **exposed to changes in economic conditions, exchange rates volatilities and political uncertainty** in some countries.
- Once such country has been Venezuela, where operating environment has been very challenging for Colgate and **economic uncertainty** due to wide exchange rate devaluations. Additionally, due to price controls, Colgate has **restricted ability to implement price increases** without governmental approval.
- Colgate's ability to generate income continue to be **negatively affected** by these difficult geo-political conditions.



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- As a result, effective from December 31st, 2015, Colgate is no longer including the results of CP Venezuela in its consolidated income statement and began accounting of its CP Venezuela entity using Cost method of accounting. As a result, the company has taken pre-tax charge of \$1.084 billion in 2015.
- This has resulting in decrease of Operating Margin of Colgate in 2015.

Net Profit Margin Formula = Net Income / Net Sales

Net Profit Margin Ratio indicates the proportion of sales revenue that translates into net profit. For example, a net profit margin of **35% means that every \$1 sale contributes 35 cents towards the net profits of the business.**

Measuring the trend of NP margin over several periods in comparison to industry benchmarks is crucial for identifying performance gaps that could be overcome to improve the profitability of business in the future.

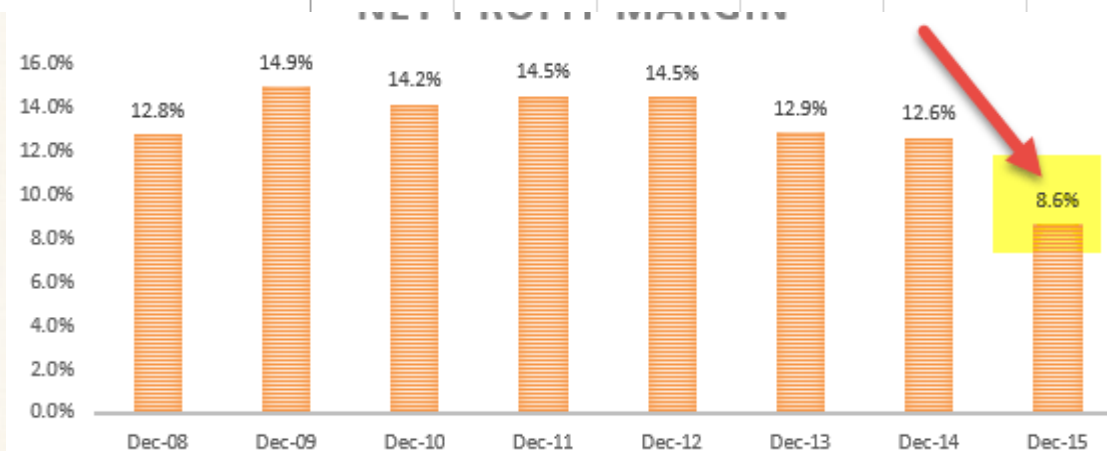


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(\$ in Million Except Per Share Amounts)	Dec-07	Dec-08	Dec-09	Dec-10	Dec-11	Dec-12	Dec-13	Dec-14	Dec-15
Net income attributable to Colgate-Palmolive Company	1,737	1,957	2,291	2,203	2,431	2,472	2,241	2,180	1,384
Earnings per common share, basic	1.68	1.91	2.27	2.23	2.49	2.60	2.41	2.38	1.53
Earnings per common share, diluted	1.60	1.83	2.19	2.16	2.47	2.57	2.38	2.36	1.52
<b>Vertical Analysis</b>	Dec-07	Dec-08	Dec-09	Dec-10	Dec-11	Dec-12	Dec-13	Dec-14	Dec-15
Net sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of sales	43.8%	43.7%	41.2%	40.9%	42.7%	41.9%	41.4%	41.5%	41.4%
Gross profit	<b>56.2%</b>	<b>56.3%</b>	<b>58.8%</b>	<b>59.1%</b>	<b>57.3%</b>	<b>58.1%</b>	<b>58.6%</b>	<b>58.5%</b>	<b>58.6%</b>
Selling, general and administrative expenses	36.1%	35.4%	34.5%	34.8%	34.4%	34.7%	35.7%	34.6%	34.1%
Other (income) expense, net	0.4%	0.7%	0.0%	0.0%	0.7%	0.7%	2.4%	3.3%	0.4%
Operating profit	<b>19.7%</b>	<b>20.2%</b>	<b>23.3%</b>	<b>23.9%</b>	<b>23.0%</b>	<b>22.8%</b>	<b>20.4%</b>	<b>20.6%</b>	<b>17.4%</b>
Interest expense, net	1.1%	0.6%	0.5%	0.4%	0.3%	0.1%	-0.1%	0.1%	0.2%
Income before income taxes	18.6%	19.6%	23.1%	22.0%	22.6%	22.7%	20.5%	20.4%	17.2%
Provision for income taxes	5.5%	6.3%	7.4%	7.2%	7.4%	7.3%	6.6%	6.9%	7.6%
Net income including noncontrolling interests	13.1%	13.3%	15.6%	14.9%	15.3%	15.4%	13.8%	13.5%	9.7%
<b>Less: Net income attributable to noncontrolling interests</b>	<b>3.7%</b>	<b>3.9%</b>	<b>4.4%</b>	<b>4.8%</b>	<b>4.8%</b>	<b>6.0%</b>	<b>7.0%</b>	<b>6.8%</b>	<b>10.6%</b>
<b>Net income attributable to Colgate-Palmolive Company</b>	<b>12.6%</b>	<b>12.8%</b>	<b>14.9%</b>	<b>14.2%</b>	<b>14.5%</b>	<b>14.5%</b>	<b>12.9%</b>	<b>12.6%</b>	<b>=K20/K\$6</b>



# PROFITABILITY MARGIN ANALYSIS

	SP_ENTITY_NAME	Market Cap	IQ_GROSS_MARGIN	Operating Profit	IQ_NI_MARGIN
2	Apple Inc.	2,456,382.7	38.23	24.15	20.91
3	Microsoft Corporation	2,252,363.2	68.93	41.60	36.45
4	Alphabet Inc.	1,923,806.9	53.58	22.59	22.06
5	Saudi Arabian Oil Company	1,859,796.4	59.93	44.46	21.45
6	Amazon.com, Inc.	1,696,388.4	39.57	5.93	5.53
7	Facebook, Inc.	1,050,609.6	80.58	38.01	33.90
8	Tesla, Incorporated	704,811.6	21.02	6.19	2.29
9	Berkshire Hathaway Inc.	648,504.1	28.40	28.40	17.32
10	Tencent Holdings Limited	569,236.3	45.97	26.01	33.16
11	NVIDIA Corporation	564,994.6	63.31	28.31	25.98

Return on equity (ROE) is the amount of net income returned as a percentage of shareholders' equity. Return on equity (also known as "return on net worth" [RONW]) measures a corporation's profitability by revealing **how much profit a company generates with the money shareholders have invested.**

$$\text{Return on Equity} = \text{Net Income} / \text{Shareholder's Equity}$$

Although ROE is a popular measure of performance in the analyst community, there is an important drawback to it from an analytical point of view:

ROE is a function of both **operating profitability and the financing choices made by management.** Therefore, if ROE increases or decreases, without further analysis we cannot say whether this change is a function of changes in the underlying profitability of the business or whether it is a function of changes in how the company finances its assets

## ROE OF SOFT DRINK SECTOR

Let us have a look at the ROE's of Top Soft Drink companies. Details provided here is the Market Capitalization, ROE, Profit Margin, Asset Turnover and Equity Multiplier.

Name	Market Cap (\$ million)	Return on Equity (Annual)	Profit Margin (Annual)
Coca-Cola	180454	26.9%	15.6%
<b>PepsiCo</b>	<b>158977</b>	<b>54.3%</b>	<b>10.1%</b>
Monster Beverage	26331	17.5%	23.4%
Dr Pepper Snapple Group	17502	39.2%	13.2%
Embotelladora Andina	3835	16.9%	5.1%
National Beverage	3603	34.6%	8.7%
Cott	1686	-10.3%	-2.4%

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Below is the list of Top automobile companies with Market Capitalization, ROEs

<b>Name</b>	<b>Market Cap (\$ million)</b>	<b>Return on Equity (Annual)</b>	<b>Profit Margin (Annual)</b>
<b>Toyota Motor</b>	167658	13.3%	8.1%
<b>Honda Motor Co</b>	55943	4.8%	2.4%
<b>General Motors</b>	54421	22.5%	5.7%
<b>Ford Motor</b>	49599	15.9%	3.0%
<b>Tesla</b>	42277	-23.1%	-9.6%
<b>Tata Motors</b>	24721	14.6%	3.6%
<b>Fiat Chrysler Automobiles</b>	21839	10.3%	1.6%
<b>Ferrari</b>	16794	<b>279.2%</b>	12.8%

Company's ability to utilize its capital employed (Debt & Equity) in the business

$$\text{ROCE Ratio} = \frac{\text{Net Operating Income (EBIT)}}{(\text{Total Assets} - \text{Current Liabilities})}$$

ROCE = Higher the Better

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In US \$	Company A	Company B
<b>Revenue</b>	500,000	400,000
<b>COGS</b>	420,000	330,000
<b>Operating Expenses</b>	10,000	8,000
<b>Total Assets</b>	300,000	400,000
<b>Current Liabilities</b>	15,000	20,000
<b>ROCE</b>	?	?

There are a couple of disadvantages of ROCE.

First, you can't depend on ROCE alone because you need to calculate other ratios to get the whole picture. Moreover, ROCE is calculated on **EBIT and not on Net Income** which can turn out to be a great disadvantage.

Second, ROCE seems to **favor older companies**. Because older companies are able to depreciate their assets more than newer companies, and as a result, for older companies, ROCE becomes better.

**Return on assets (ROA)** is a financial ratio that shows the percentage of profit a company earns in relation to its overall resources.

$$\text{Return on Total Assets} = \text{EBIT} / \text{Average Total Assets}$$

- Return on Total Assets of a company is more than 20% for the last 5 years. Do you think it's a good measure to invest into the company for future benefits?
- In simple terms, we can say that increase in the Return on Total Assets means better use of assets to generate returns for the firm and decrease in the Return on Total Assets means that the firm has a room for improvement – maybe the firm needs to reduce few expenses or to replace few old assets that are eating out the profits of the company.

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# ROA

<b>Particulars</b>	<b>Company A (in US \$)</b>	<b>Company B (in US \$)</b>
Operating Profit – EBIT	10000	8000
Taxes	2000	1500
Assets at the beginning of the year	13000	14000
Assets at the end of the year	15000	16000

For industries which are asset intensive won't generate that much income compared to the industries which are not asset intensive. For example, if we take into account an auto industry, to produce auto and as a result of that, profits; the industry first needs to invest a lot in the assets. Thus, in case of auto industry, the ROA won't be that higher.

However, in case of services companies where investments in Assets is minimal, then the ROA will be pretty high.

# Earnings Per Share (EPS)

$$\text{Earnings per Share} = \frac{(\text{Net Income} - \text{Preferred Dividend})}{\text{Weighted Average Number of Shares Outstanding}}$$

Every investor invests into a company's stock mainly for two reasons –

Firstly, the investors invest in a company's stock because they expect a handsome dividend from the company.

Secondly, the investors may see a great growth potential of the company in near future. If the company grows, the share price will also rise and that will only help investors in ensuring a great return on their investments.

Hit Technology Inc. has the following information –

The net income for the year end 2017 – \$450,000

The preferred dividends paid in 2017 – \$30,000

At the beginning of the year 2017, the common shares outstanding were 50,000 shares. In the middle of the year, Hit Technology Inc. issued another 40,000 common shares.



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- Activity/Turnover Ratios

# Activity/Turnover Ratios

1. **Inventory Turnover Ratio (ITR):** It dictates how fast a company replaces a current batch of inventories and transforms the inventories into sales.



**Inventory Turnover Ratio Formula**

$$= \frac{\text{Cost of Goods Sold}}{\text{Average Inventories}}$$




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# Colgate's Inventory Turnover

	Dec-07	Dec-08	Dec-09	Dec-10	Dec-11	Dec-12	Dec-13	Dec-14	Dec-15
<b>Assets</b>									
Current Assets									
Cash and cash equivalents	429	555	600	490	878	884	962	1,089	970
Receivables	1,681	1,592	1,626	1,610	1,675	1,668	1,636	1,552	1,427
Inventories	1,171	1,197	1,209	1,222	1,327	1,365	1,195	1,382	1,180
Other current assets	338	366	375	408	522	639	99	840	807
Total current assets	3,619	3,710	3,810	3,730	4,402	4,555	4,822	4,863	4,384
<b>Inventory Turnover = (COGS / Average Inventory)</b>									
<b>Solvency Ratios</b>									
Current ratio	1.14x	1.26x	1.06x	1.00x	1.18x	1.22x	1.08x	1.23x	1.24x
Quick ratio	.67x	.73x	.62x	.56x	.69x	.68x	.56x	.67x	.68x
Cash ratio	.14x	.19x	.17x	.13x	.24x	.24x	.22x	.28x	.27x
Sales	13790	15330	15327	15564	16734	17085	17420	17277	16034
COGS	6043	6704	6319	6360	7144	7153	7219	7168	6635
Purchases		6,730	6,331	6,373	7,249	7,191	7,279	7,125	6,433
<b>Turnover Ratios</b>									
Receivables turnover		9.37x	9.53x	9.62x	10.19x	10.22x	10.54x	10.84x	10.76x
Inventory Turnover		5.66x	5.25x	5.23x	5.61x	5.31x	5.17x	5.11x	(K10)

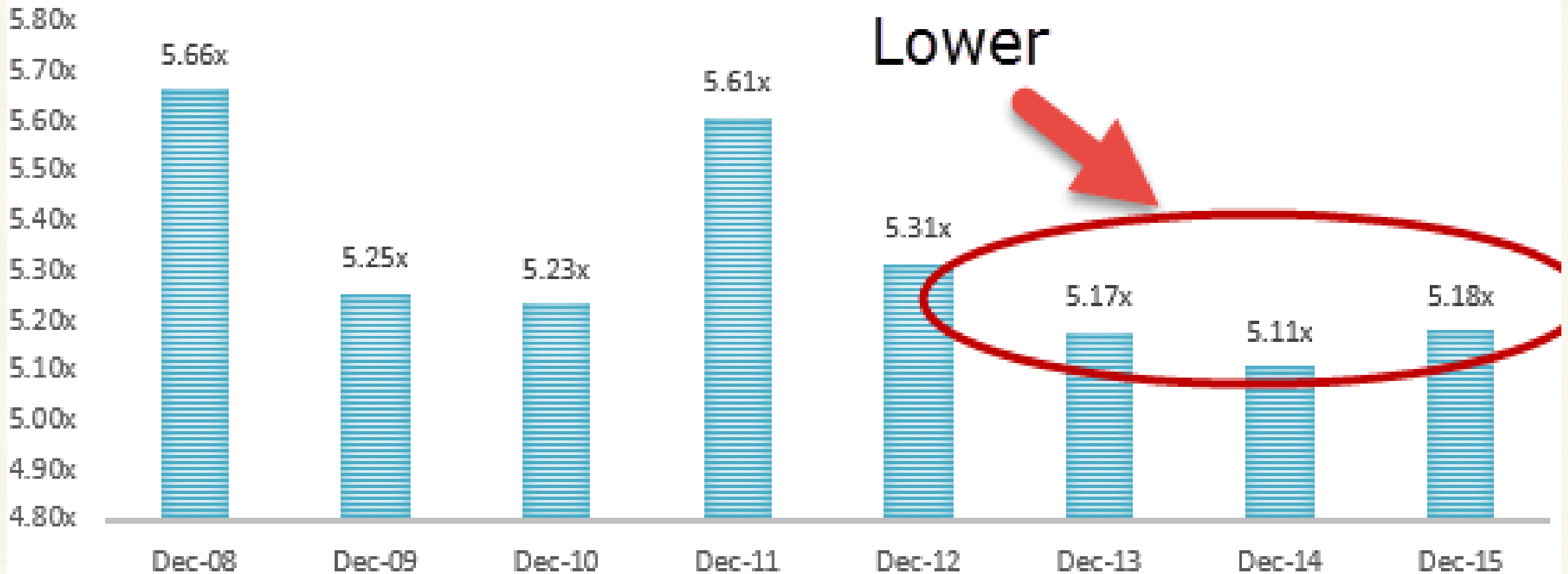


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## INVENTORY TURNOVER






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# Accounts Receivables Turnover Ratio

- This ratio is a measure that computes that how easily a company can convert its receivables into cash



Receivables Turnover Ratio  
Formula

$$= \frac{\text{Net Credit Sales} \img alt="Icon of a blue calculator." data-bbox="715 540 755 670}}{\text{Average Accounts Receivables}}$$




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- A **higher Accounts receivables turnover is healthy for a company**. It denotes that the time interval between the credit sales and the receipt of money is lower. And that means the firm is quite efficient in collecting the accounts receivables.
- On the other hand, a lower Accounts receivables turnover is not good enough for a company. It indicates that the time interval between the credit sales and the receipt of money is higher. And as a result, there's always a **risk of not receiving the due amount**.
- When an investor looks at the Accounts receivables turnover, he/she needs to know **how efficient the firm is in collecting the due amount**. If there's any risk in delaying or not receiving the payment, it may directly affect the cash flow of the company.


# AVERAGE COLLECTION PERIOD

- The collection period is the time between the credit sales are made and the cash is paid.


$$\text{Average collection Period} = \frac{365 \text{ Days}}{\text{Accounts Receivable Turnover Ratio}}$$


Average collection Period Formula

Accounts Receivable Turnover Ratio





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**BIG Company** decides to increase its credit term. The top management of the company requests the accountant to find out the collection period of the company in current scenario.

Here is the information available to the accountant –

Net Credit Sales for the year – \$150,000

Accounts Receivables at the beginning of the year – \$20,000

Accounts Receivables at the end of the year – \$30,000

As an accountant, find out the collection period of **BIG Company**.

For example, if a company has a collection period of 40 days, it should provide the term as 30~35 days.

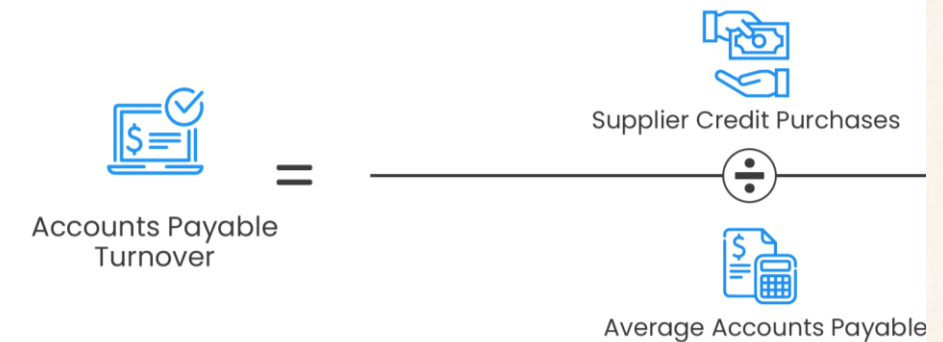
Knowing the collection period is very useful for any company.

There are two reasons for this –

- First, a huge percentage of company's cash flow depends on the collection period.
- Second, knowing the collection period beforehand helps a company decide means to collect the money that is due on the market.

- Cash Conversion Cycle- The **Cash Conversion Cycle (CCC)** is a metric that measures how long it takes for a company to convert its investments in inventory and other resources into cash from sales.
- It incorporates the time needed to sell inventory, collect receivables, and pay payables.

## Accounts Payable Turnover Ratio Formula



The diagram illustrates the Accounts Payable Turnover Ratio Formula. On the left, there is an icon of a laptop with a checkmark and a dollar sign, labeled "Accounts Payable Turnover". This is followed by an equals sign. To the right of the equals sign is a horizontal line. Above the line is an icon of hands exchanging a banknote, labeled "Supplier Credit Purchases". Below the line is a division symbol (a circle with a horizontal line and a dot above and below it). Below the division symbol is an icon of a document with a dollar sign and a calculator, labeled "Average Accounts Payable".

$$\text{Accounts Payable Turnover} = \frac{\text{Supplier Credit Purchases}}{\text{Average Accounts Payable}}$$

- **Cost of Goods Sold (COGS)** for the year: \$500,000
- **Net Credit Sales** for the year: \$750,000
- **Average Inventory:** \$100,000
- **Average Accounts Receivable:** \$90,000
- **Average Accounts Payable:** \$80,000

# Solvency Ratios

Solvency ratios are calculated to determine the ability of the business to service its debt in the long run.

Long term investors are interested in safety of their principal amount and interest.

1. Debt~Equity ratio
2. Interest Coverage ratio

# Debt~Equity Ratio

- Measures the relationship between long-term debt and equity.
- From security point of view, capital structure with less debt and more equity is considered favourable as it reduces the chances of bankruptcy.

$$\text{Debt~Equity Ratio} = \text{Long – term Debts/Shareholders' Funds}$$

$$\text{Shareholders' Funds (Equity)} = \text{Share capital} + \text{Reserves and Surplus} + \text{Retained Earnings}$$



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# Interest Coverage ratio

- It is a measure of security of interest payable on long-term debts. It expresses the relationship between profits available for payment of interest and the amount of interest payable.

$$\text{Interest Coverage Ratio} = \text{EBIT} / \text{Interest on long-term debts}$$

- A higher ratio ensures safety of interest on debts.



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# Market Related(valuation Ratio)



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# P/E Ratio

- Used to determine how much investors are willing to pay for a stock relative to the company's earnings.

$$\text{P/E Ratio} = \text{Market Value per Share} / \text{Earnings per Share}$$

P/E is sometimes referred to as the price multiple because it shows how much investors are willing to pay per dollar of earnings.

Let's say, P/E ratio = 20

An investor is willing to pay \$20 for \$1 of current earnings.

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Particulars	Company A (in US \$)	Company B (in US \$)
Market value per share	18	18
EPS	2	6
P/E ratio	9	3

Investor can invest in Company B, because he/she is paying less for the same amount of earning.

# P/BV Ratio

- To compare a company's market value with its book value.
- This ratio also indicates whether **you're paying too much for what would remain if the company went bankrupt** immediately.

**$P/B \text{ ratio} = \text{market price per share} / \text{book value per share}$**

**A lower P/B ratio could mean the stock is undervalued.** However, it could also mean something is **fundamentally wrong with the company.** As with most ratios, this varies by industry.

- A financial ratio that **indicates how much a company pays out in dividends each year relative to its share price.**
- For Investors' dividend yield is a way to measure how much cash flows they are getting for each dollar invested in a dividend-paying shares.

$$\text{Dividend Yield ratio} = \frac{\text{Annual dividend per share}}{\text{Market Price per share}}$$

# Summary

Ratio analysis is to provide a deeper analysis of the profitability, liquidity, solvency and activity levels in the business. It is also to identify the problem areas as well as the strong areas of the business.

Users can not rely on single ratios for decision-making

$$\text{Profit Margin} = \frac{\text{Profit/Earnings}}{\text{Sales}}$$

$$\text{ROE} = \text{Total Asset Turnover} = \frac{\text{Sales}}{\text{Assets}}$$

$$\text{Equity Multiplier} = \frac{\text{Assets}}{\text{Equity}}$$

- Return on equity
  - – Profit margin ratio \*
  - – Asset turnover ratio \*
  - – Financial leverage ratio\*

- **1. Liquidity:** measures a firm's ability to meet its short-term obligations, e.g.: Current Ratio, Quick Ratio; Cash Ratio
- **2. Profitability:** measures the ability of a firm to generate profit, e.g.: ROA, Gross Profit Margin;
- **3. Efficiency:** captures the effectiveness of firm's usage of assets and liability, e.g.: Asset Turnover, Inventory Turnover;
- **4. Financial Soundness/Solvency:** captures the firm's ability to meet long-term obligations, e.g.: Total Debt to Equity Ratio, Interest Coverage Ratio;



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- 1. Capitalization:** measures the **debt component of a firm's total capital structure**, e.g.: Capitalization Ratio, Total Debt-to-Invested Capital Ratio;
- 2. Valuation:** estimates the **attractiveness of a firm's stock** (overpriced or underpriced), e.g.: P/E ratio, Shiller's CAPE ratio;
- 3. Others:** Miscellaneous ratios, e.g.: R&D-to-Sales, Labor Expenses-to-Sales.