

## **Financial Performance of Cement Companies in India**

**Dr. C. AZHAKARRAJA**

Assistant Professor of Commerce  
Cardamom Planters' Association College  
Bodinayakanur – 625 513, Tamil Nadu, India

### **Abstract**

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*The cement industry is one of the key industries in India. It ranks second immediately after iron and steel industry. The production and consumption of cement to a large extent indicate a country's progress. Cement is a capital intensive industry which means that competition is limited to mainly small groups of large industrial houses. Therefore, the study of productivity in the cement industry with special reference to Tamil Nadu is necessary to have a better understanding of the phenomenon as well as for delineating the area of remedial action. Cement is an essential component of infrastructure development and most important input of the construction industry, particularly in the government's infrastructure and housing programs, which are necessary for the country's growth and development. It is also the second most consumed material on the planet. The Indian cement industry is the second largest producer. It is consented to be a core sector accounting for approximately 1.3% of GDP and Employing over 0.14 million people. Also the industry is a significant contributor to the revenue collected by both the central and state governments through excise and sales taxes. This paper history of cement, cement industry background and profile analysis are covered.*

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### **Introduction of Cement**

The word "cement" derived from "cementum" in Latin meaning hewn stone chips and then started to be used in the meaning of "binder". The date of the first reinforced concrete building is 1852 but yet the use of binding agents in the construction of buildings dates back to very old times. The first material used as binding agent is lime. Although there are no precise findings, it is possible to say that the binding property of lime was discovered in the early period of human history in 2000s B.C. Examples of the use of lime as a construction material have been encountered in different regions of the Ancient Egypt, Cyprus, Crete and Mesopotamia. The Ancient Greeks and Romans used lime as a hydraulic binder. Architect Vitruvius (70-25 B.C.), in his 10-volume book "On Architecture", mentions the hydraulic properties of porcelain and lime and even gives a mixing ratio that can be used in the buildings to be constructed by rivers and seas. Research results prove that the plaster used in the construction of Çatalhöyük houses in Anatolia dates back to 7000 years ago. Throughout the history, many different binding agents symbolizing the civilization of that period were used in the Egyptian Pyramids and the Great Wall of China and in the castles built at different times. Later on, nearly 2000 years ago, the Romans mixed hydrated lime with volcanic ashes and afterwards with dusts obtained from fire brick and thus started to use a hydraulic binder having properties similar to those of today's cement. On the other hand, the Ancient Greeks prepared mortar by mixing the volcanic tuffs on Santorini Island with lime or with some sort of hydraulic lime they obtained from argillaceous limestone.

The Ancient Greeks and Romans discovered the hydraulic property of lime and pozzolona mixtures and used such mixtures but did not have the knowledge to explain lime acquisition or pozzolanic reactions in terms of chemistry. For instance, Pliny (Roman scholar Gaius Plinius) writes that it is inexplicable why "the lime obtained by burning stone in fire re-flames when it comes into contact with water." However, in the 18th century, a significant development occurred in the quality and usage of binding agents. John Smeaton, who was charged with rebuilding Eddystone Lighthouse in 1756, is known to be the first person to comprehend the chemical properties of lime. The following development is the acquisition of a binder known as "Roman Cement" by Joseph Parker. In 1824, Joseph Aspdin, a stonemason in Leeds-England, obtained a binding agent by firing and then grinding the mixture of fine-grain clay and limestone. Joseph Aspdin added water and sand to that product and thus enabled it to harden in time and then saw that the resulting material resembled the building stones obtained from England's Portland Island. So, on 21.10.1824, he took out a patent for that binder under the name of "Portland Cement". Even though that binder was improved greatly in the following years, the name "Portland" remained the same. As a matter of fact, the binder produced by Joseph Aspdin could not have all properties of today's Portland Cement due to the fact that it was not fired at temperatures high enough during production. Nonetheless, it was found out that Wakefield Arms, which is still standing next to Kirkgate Station in England, was built with the binder produced by Joseph Aspdin. The process of firing at high temperatures and then grinding raw materials was realized by an Englishman called Isaac Johnson (1845). It was seen that, in Anatolia, natural pozzolanic active materials mixed with magnesium lime were used in the preparation of mortar in Hittite cities and in particular in the ancient cities located in Çorum, Tokat and Malatya. Apart from that, examples such as the use of common lime and basaltic pozzolanic matter in the historical ruins of the Assyrians in the South Eastern Anatolia point out that cement was used in Anatolia before the Greeks and Romans. In the ancient cities of Teos- İzmir, Ephesus-İzmir, Aphrodisias-Aydın, Kinidos- Muğla, cement and mortar were also encountered following wide contact with ancient Anatolian civilizations. Although cement production and sales commenced in 1878 in the world, cement sector was introduced to Turkey primarily in 1912 with private sector initiative. The 34-year delay in question results from insufficient hydraulic lime production and the fact that those years coincided with the fall of the Ottoman Empire.

### **Cement Industry in India**

Cement is one of the core industries which plays a vital role in the growth and development of a nation. The cement industry in India has been expanding significantly on the back of increasing infrastructure activities and demand from the housing sector. Keeping in line with the technological world, the Indian cement industry has transited itself into a more advanced one. At present, the Indian cement industry is positioned on the second rank globally and comprise of 183 large and 365 mini cement plants. Moreover, the Indian cement majors, including ACC Ltd, Shree Cement Ltd and Ultratech, have signed a co-operation pact to support low-carbon investments in India. The pact was signed in Geneva with member companies of the World Business Council (WBC) for Sustainable Development's Cement Sustainability Initiative and International Finance Corporation (IFC). The roadmap will pose as a possible transition path for the Indian cement industry to reduce its direct emissions by 18 per cent by 2050. This is the first roadmap to focus on one specific industrial sector in a single country, as per a WBC release.

It is an exciting time to be in the cement industry in India. The Indian government has announced spend of US\$1 trillion over the next five years on infrastructure, which augurs well for the cement industry. Large cement companies in India have already invested in building efficient and modern cement plants in the country. Collectively, the country's capacity stands at 320 million tonnes and UltraTech Cement Limited, with a capacity of 52 million tonnes is the single largest player and the most premium cement brands in India. The manufacturing operations span India, Bahrain, Dubai, Bangladesh and Sri Lanka. The company's shares are listed on the Bombay Stock Exchange and the National Stock Exchange (in India) and the Global Depository Receipts (GDRs) are listed on the Luxembourg Stock Exchange. UltraTech is also the largest white cement (0.56MTPA) and ready-mix-concrete (101 plants) company in the country. Moreover, our new products division manufactures and markets products like Autoclaved Aerated Concrete (AAC) blocks, waterproofing and grouting solutions, and jointing mortars, while our UltraTech Building Solutions division operates retail outlets that offer all primary construction products and technical advice for construction, under one roof.

Ultra Tech is a member of the Cement Sustainability Initiative (CSI) of the World Business Council for Sustainable Development and works towards lowering its environmental footprint by reducing carbon emissions, using alternative fuels and additives like fly ash in its production process. Going beyond business, UltraTech works in 407 villages around our plants to bring to the people the benefits of education, basic health care, sustainable livelihood, and safe drinking water and sanitation. Says Mr. O. P. Puranmalka, Whole time Director, UltraTech Cement Limited, "The march of technology and industry must be matched with a social and spiritual evolution. At UltraTech, our unswerving focus on incorporating our values and applying the concept of trusteeship in our business decisions, will deliver growth that is beneficial to all stakeholders." *UltraTech is the cement major of Aditya Birla Group, a premium conglomerate in India that operates in businesses such as metals, chemicals, carbon black, textiles and apparel, financial services, BPO and telecom.*

## **Design**

The sample companies are selected on the basis of convenient sampling method. A sample of five companies has been selected on the basis of the availability of data for five years.

- Ultratech cement limited
- Acc cement limited
- Ambuja cement limited
- India cement limited
- Ramco cement limited

The researcher has selected five cement companies Ultra tech cement limited, Acc cement limited, Ambuja cement limited, India cement limited and Ramco cement limited.

## **Ultratech Cement Ltd**

Ultratech Cement Ltd is an India-based company engaged in the production of cement. The company manufactures and markets Ordinary Portland Cement, Portland Blast Furnace Slag Cement and Portland Pozzallana Cement. They also manufacture ready mix concrete. They are having 11 integrated plants, one white cement plant, 12 grinding units and five terminals - four in India and one in Sri Lanka. The company is the subsidiary of Grasim Industries Ltd the company is the country's largest exporter of cement clinker. The export markets span countries around the Indian Ocean, Africa, Europe and the Middle East. The export market comprises of countries around the Indian Ocean, Africa, Europe and the Middle East. The company's subsidiaries are Dakshin Cements Ltd, UltraTech Cement Lanka Pvt Ltd and UltraTech Cement Middle East Investments Ltd. UltraTech Cement Ltd was incorporated on August 24, 2000 as a public limited company with the name L&T Cement Ltd as a 100% subsidiary of Larsen & Toubro Ltd. In November 2003, the name of the company was changed from L&T Cement Ltd to UltraTechChemCo Ltd. In the year 2004, pursuant to the scheme of arrangement, the cement business of Larsen & Toubro Ltd was de-merged and got transferred to the company with effect from April 1, 2003. In May 14, 2004, the company acquired four crore equity shares of Larsen & Toubro Ceylino (Pvt) Ltd from Larsen & Toubro Ltd at an aggregate consideration of Rs 23.03 crore. In July 2004, Grasim Industries Ltd acquired management control of the company and on October 14, 2004, the name of the company was changed from UltraTechChemCo Ltd to UltraTech Cement Ltd. Also, Narmada Cement Company Ltd became a subsidiary of the company by virtue of the scheme of arrangement for de-merger of the cement business of Larsen & Toubro Ltd. During the year 2005-06, the company increased the production capacity of Cement from 155 lakh tonnes to 170 lakh tonnes. As per the scheme of amalgamation, Narmada Cement Company Ltd was amalgamated with the company. Thus, the entire undertaking of Narmada Cement Company Ltd was transferred to the company with effect from October 1, 2005. During the year 2007-08, the company increased the production capacity of Cement from 170 lakh tonnes to 182 lakh tonnes. They set up 15 Ready Mix Concrete plants across the country. In March 2008, the Clinkerisation (pyrosection) unit at Andhra Pradesh Cement Works (APCW) was commissioned. During the year 2008-09, the company increased the production capacity of Cement from 182 lakh tonnes to 219 lakh tonnes as a result of expansion of capacity at the company's unit in Andhra Pradesh Cement Works (APCW) together with a new split grinding unit at Ginigera, Karnataka.

They commenced commercial production of cement from their unit in APCW and grinding unit at Ginigera. During the year, the company commissioned 192 MW captive TPPs at their units at APCW, Hirni Cement Works (HCW) in Chhattisgarh and Gujarat Cement Works (GCW) in Gujarat in a phased manner. Also, they set up new Ready Mix Concrete (RMC) plants and thus increased the RMC capacity to 4.76 million cubic meters per annum. During the year 2009-10, the company increased the production capacity from 219 lakh tonnes to 231 lakh tonnes. They incorporated a wholly-owned subsidiary company in UAE in the name of 'UltraTech Cement Middle East Investments Ltd'. In May 2010, the cement business of Grasim Industries Ltd was de-merged and vested in Samruddhi Cement Ltd. In July 2010, Samruddhi Cement Ltd was amalgamated with the company. During the year 2010-11, the company's wholly-owned subsidiary, UltraTech Cement Middle East Investments Ltd completed the acquisition of ETA Star Cement (ETA) and acquired management control of ETA's operations in the UAE, Bahrain and Bangladesh.

## **ACC LTD**

ACC Ltd is India's foremost manufacturer of cement and concrete. The company is engaged in the manufacture of cement and ready-mixed concrete. They manufacture a range of Portland cement for general construction and special applications. In addition, they also offer two products namely, bulk cement and ready mix concrete. The company's operations are spread throughout the country with 16 modern cement factories, more than 40 Ready mix concrete plants, 20 sales offices, and several zonal offices. Their subsidiaries include ACC Concrete Ltd, Bulk Cement Corporation (India) Ltd, ACC Mineral Resources Ltd, Lucky Minmat Ltd, National Limestone Co Pvt Ltd and Encore Cements & Additives Pvt Ltd. ACC Ltd was incorporated on August 1, 1996 as The Associated Cement Companies Ltd. The company was formed by merger of ten existing cement companies. In the year 1944, they established India's first entirely indigenous cement plant at Chaibasa in Bihar. In the year 1965, the company established Central Research Station in Thane. In the year 1973, they acquired The Cement Marketing Company of India. In the year 1978, they introduced the energy efficient precalcinator technology for the first time in India. In the year 1982, the company commissioned their first 1 MTPA plant in the country at Wadi, Karnataka. In the year 1982, the company incorporated Bulk Cement Corporation of India, a joint venture with the Government of India.

In the year 1999, the Tata group sold their 7.2% stake in the company to Ambuja Cement Holdings Ltd, a subsidiary of Gujarat Ambuja Cements Ltd and in the year 2000, Tata group sold their remaining stake in the company to Gujarat Ambuja Cements Ltd. In the year 2001, the company commissioned a new plant of 2.6 MTPA capacity at Wadi, Karnataka. In the year 2003, IDCOL Cement Ltd becomes a subsidiary of the company, which was renamed as a Bargarh Cement Ltd during the year 2004. In the year 2005, the company completed the modernization and expansion project at Chaibasa in Jharkhand, replacing old wet process technology with a new 1.2 MTPA clinkering unit, together with a captive power plant of 15 MW. In the year 2006, the subsidiary companies Damodhar Cement & Slag Ltd, Bargarh Cement Ltd and Tarmac (India) Ltd merged with the company. Also, the name of the company was changed from The Associated Cement Companies Ltd to ACC Ltd with effect from September 1, 2006. In the year 2008, the ready mixed concrete business was hived off to a new subsidiary called ACC Concrete Ltd. They acquired 40% stake in Alcon Cement Company Pvt Ltd to strengthen their presence in Goa. Also, they acquired 12.41% equity shares of Bulk Cement Corporation (India) Ltd from IDBI Bank Ltd, thereby increasing their shareholding in the said subsidiary company to 94.65%. In March 2008, the company sold their wholly owned subsidiary, ACC Machinery Company Ltd for a consideration of Rs.45 crore. In July 7, 2008, they inaugurated ACC Cement Technology Institute at Jamul.

In the year 2010, the company commissioned the 2.5 MW windmill project in Maharashtra. Also, they commissioned one CPP of 25 MW at Wadi, two 15 MW CPPs at Bargarh and one 25 MW CPP at Chanda during the year. The company through their wholly owned subsidiary ACC Mineral Resources Ltd entered into joint venture agreements with Madhya Pradesh State Mining Corporation Ltd for development of four coal blocks. In April 2010, the company completed the acquisition of a 45% equity stake in Asian Concrete and Cements Pvt Ltd. This company commenced production from their new grinding unit during the year. In the year 2011, the company installed the world's largest kiln at Wadi, Karnataka with a capacity of 12,500 tonnes per day. The Operations of the state-of-the-art kiln at the Wadi and the cement grinding plants at Kudithini and Thondebhavi stabilized during the year. The new clinkering unit at Chanda in Maharashtra also stabilized its operations during the year.

In November 2011, the Secretarial and Share Departments of the company received an ISO 9001-2008 certification from Det Norske Veritas (DNV) AS Certification Services. During the year, the company made an application to the Honorable High Court of Judicature at Bombay for approval to a scheme of amalgamation of three of the company's wholly owned subsidiaries viz. Encore Cement and Additives Pvt Ltd, Lucky Minmat Ltd and National Limestone Company Pvt Ltd. The amalgamation process is currently in progress. The company is planning to set up a new clinker production facility of 2.79 MTPA and allied grinding facility at Jamul. The company is also planning decentralized grinding stations which will use clinker produced at Jamul. The project will be implemented in a phased manner and scheduled for completion by the first quarter of 2015.

### **Ambuja Cement LTD**

Ambuja Cements Ltd (ACL) was incorporated in the year 1981 as Ambuja Cements Pvt Ltd. The company was established as a joint venture between the public sector Gujarat Industrial Investment Corporation (GIIC) and NarottamSekhsaria and Associates. In May 19, 1983, the company was rehabilitated into a public limited company. Subsequently, the company name was changed to Gujarat Ambuja Cements Ltd. Further, the name was changed to Ambuja Cements Ltd. The company has five integrated cement manufacturing plants and eight cement grinding units. It is the first Indian cement manufacturer having a captive port with three terminals along the country's western coastline to facilitate timely, cost effective and environmentally cleaner shipments of bulk cement to its customer. In the year 1985, the company set up a cement plant in technical collaboration with Krupp Polysius, Germany, Bakau Wolf and Fuller KCP. During the year 1988-89, the company commissioned the 12.6 MW diesel-generating sets. In the year 1991, they got the necessary approvals for setting up another cement plant with 1 million tonne capacity per annum at Himachal Pradesh. The company undertook bulk cement transportation, by sea, to the major markets of Mumbai, Surat and other deficit zones on the West Coast.

In the year 2000, giants Larsen & Tubro (L&T) and Gujarat Ambuja Cements entered a unique agreement to reduce transportation costs in dispatching bulk cement in Gujarat. Also, they entered into an annual contract with a Soinhalese firm, Mahaveli Marine Cement, to supply around 2.5 lakh tonnes of cement. In June 2002, they started commercial production in the new 2-million tonne Greenfield cement plant at Chandrapur, Maharashtra. In the year 2004, Ambuja Cement Rajasthan was amalgamated with the company. In February 2005, the company set up a cement mill with a capacity of 80 TPH at Darlaghat and commenced commercial production. They commissioned a captive thermal power plant with two 12 MW Steam Turbo Generators (STG), with two boilers of 45 TPH capacity each at a cost of Rs. 94 crore. In the year 2011, the company started commercial production in a new cement mill at a cost of approx. Rs 185 crore at Bhatapara plant. Also, they commissioned a new cement mill of 0.9 million tonne cement grinding capacity at Maratha Cement Works plant at a cost of approx Rs 61 crore. The company commissioned a 7.5 MW Wind Mill project in Kutch, Gujarat at a cost of Rs 46 crore. The company increased the installed capacity in Bhatinda grinding unit in Punjab by 0.1 million tonnes to reach at 0.6 million tonnes. Also, they increased the installed capacity in the Farraka grinding unit in West Bengal by 0.25 million tonnes to reach at 1.25 million tonnes. In June 2011, the company made strategic investments in Dang Cement Industries Pvt. Ltd, Nepal and acquired a 85 % shareholding for Rs 19.13 crore to help further expansion of capacity in the northern region of India and Nepal. In September 2011, they acquired a 60 % shareholding in Dirk India Pvt Ltd, Maharashtra Rs 16.51 crore. The company entered into a joint venture for specialty cement manufacturing facility in Goa wit CountoMicrofine Products Pvt Ltd.

### **India Cement Cements LTD**

India Cements Ltd is the largest producer of cement in South India. The company has four plants in Tamil Nadu and four in Andhra Pradesh, India which cater to all major markets in South India and Maharashtra. They are the market leader with a market share of 28% in the South India. They have a distribution network with over 10,000 stockists. Their brands include Coromandel King-SankarSakthi- Raasi Gold, Coromandel-Sankar-Raasi, blended cements and Sulphate Resisting Portland Cement. Their product includes ready mix concrete (RMC). The company subsidiaries include Industrial Chemicals and Monomers Ltd, ICL Financial Services Ltd, ICL Securities Ltd, ICL International Ltd and Trinetra Cement Ltd. India Cements Ltd was incorporated in the year 1946. In the year 1969, they expanded the installed capacity at Sankarnagar to 9 lakh tonnes per annum. Also, they received Merit Certification for Outstanding Export Performance (1968-1969). In the year 1971, the company expanded the installed capacity at Sankari Drug to 6 lakh tonnes per annum. In the year 1990, the company acquired Coromandel Cement plant at Cuddapah. They converted the Sankarnagar Plant to Dry Process with the increased capacity of 1 million tonnes per annum.

In the year 2001, they divested their stake in Sri Vishnu Cement Ltd. In November 2004, the company commissioned the Unique Waste Heat Recovery System for generation of power from waste gas at Vishnupuram Cement Plant with the capacity of 7.7 MW. Also, the company through their special purpose vehicle Coromandel Electric Co Ltd commissioned a (gas based) captive power plant at Ramanathapuram with the capacity of 17.4 MW. In the year 2008, they revived their shipping business with the purchase of two ships (dry bulk carriers) with a total capacity of 79,843 DWT. They completed and commenced commercial production of one million tonne grinding plant at Chennai. Also, the company successfully bid for the Chennai franchise of the DLF-IPL 20/20 Cricket Tournament - 'Chennai Super Kings'. In the year 2009, the company completed and commenced commercial production of one million tonne grinding plant at Parli (Maharashtra). The company's subsidiary, namely, Trishul Concrete Products Ltd completed and commenced commercial production of one lakh Cu.Mready mix concrete Plant at Hyderabad (Andhra Pradesh). During the year 2010-11, the company obtained ISO 9001 certification for quality assurance for their Dalavoi Plant in addition to their existing plants at Sankarnagar, Chilamakur and Vishnupuram. In June 2010, the company completed the up gradation of capacity at Chilamakur to 4500 tonnes per day. During the year, the company initiated steps to set up a division for infrastructure activities. The Division is in the process of finalizing the main areas of focus and is likely to commence activities during the current year.

### **Ramco Cements LTD**

Madras Cements (MCL), a flagship company of the Ramco group, is a major player in the blended cement category in south India. The company was incorporated in the year 1957. MCL is the sixth largest cement producer in the country and the second largest in South India. The Company undertook to replace the 4 cement mills at its Ramasamyraja Nagar Works, which were 20 years old, by a single new Combidan Cement Mill'. The mill was commissioned at end of the year 1985. A 132 KVA sub-station and the limestone crushing plant were installed during the same year. In the same year 1993, an additional capacity was created by adding 8 Nos. wind turbines of 250 KW each at Muppandal wind mill farm taking the generation capacity to 6 MW. During the year 1994, MCL had upgraded the capacity of its Jayanthipuram Unit to 1.1 million tonnes and also upgraded the cement mills capacity in R. R. Nagar. The Company substantially increased the capacity of windmills by installation of 70 more windmills. In the year 1995, the company enhanced power generation capacity at Jayanthipuram unit to 15.3 MW by commissioning an additional diesel generator set to maintain normal production in view of frequent power-cut and power tripping. During the year 1997, MCL had commissioned its third cement plant in Alathiyur; it was the second in Tamil Nadu. The clinker plant of the Alathiyur unit was commissioned in March while the grinding unit was commissioned in May of the same year 1997. The Company had embarked into Ready Mix Concrete business in the year 1998.

During the year 1999-00, the company's slag grinding project at Jayanthipuram for manufacture of blended cement was commissioned and also the capacity of the Alathiyur unit was expanded by 0.2 million TPA. During the year 2000, the company had launched the Ramco Super Steel cement in Tamil Nadu. The second klin at R.R Nagar was upgraded in May of the year 2001 with the installation of fixed inlet segment to the cooler, new calciner and modifying pre heater cyclone, thereby increasing the capacity of the unit to 11 lac TPA of blended cement. With the help of M.Tec, Germany, the company started new project Dry Motor Plant for manufacture of high technology construction products such as render, skimcoat and dry concrete and its production commenced from January of the year 2003 at Sripurumbudur. During 2004-05, The Company commissioned a 36 MW Thermal Power Plant at Alathiyur. The company, for the first time in India, commissioned a surface mine to modernise the mine operations at Ramasamyraja Nagar factory. The Company decided to establish grinding units in the states of Tamil Nadu, Andhra Pradesh and West Bengal in May of the year 2007. During October of the year 2007, MCL earmarked Rs 1.05 billion investments for set up the grinding mill at Kolaghat in Midnapore, West Bengal. With an eye on diversification, MCL is planning to enter into industries such as sugar, pharmaceuticals, power & power equipments and textiles. As at March 2008, Madras Cements lines up Rs 15 billion expansion. It will invest Rs 15.24 billion to increase its capacity.

## Financial Profitability Performances of Cement Companies

### Operating Profit Margin Ratio

The operating profit margin ratio indicates how much profit a company makes after paying for the variable costs of production such as wages, raw materials, etc. It is expressed as a percentage of sales and shows the efficiency of a company the controlling the costs and expenses associated with business operations. Phrased more simply, it is the return achieved from standard operations and does not include unique or one time transactions. Terms used to describe operating profit margin ratios this includes operating margin, operating income margin, operating profit margin or return on sales (ROS).

The operating profit ratio is calculated as follows

$$\text{Operating Profit Ratio} = \frac{\text{Operatingprofit}}{\text{sales}} \times 100$$

### Operating Profit Margin Ratio of Cement Companies

S.No	Company Name	2009	2010	2011	2012	2013	Mean	S.D
1	Ultratech cement	27.29	28.08	20.02	22.64	23.17	24.24	3.37
2	Acc cement	24.66	31.95	21.42	19.88	19.33	23.44	5.18
3	Ambuja cement	28.85	27.07	25.18	23.11	25.41	25.92	2.15
4	India cement	27.94	20.54	10.26	21.49	17.9	19.62	6.40
5	Ramco cement	37.26	30.75	30.88	24.12	29.52	23.05	3.19

Above Table reveals that the ratio of ULTRATECH CEMENT LTD was 27.29 in 2009 and after that the ratio was decreasing trend. In 2013 it finally reached 23.17 among all selected 10 cement companies. The mean and standard deviation are 24.24 and 3.37 respectively.

The ratio of ACC CEMENTS LTD was 24.66 in 2009 and after that the ratio was increasing trend. Finally it reached 19.33 during the year 2013. The mean and standard deviation are 23.44 and 5.18 respectively.

The ratio of AMBUJA CEMENT LTD was reached 28.85 in 2009 and after that the ratio on a decreasing trend. Finally it reached 25.1 during the year 2013. The mean and standard deviation are 25.92 and 2.15 respectively.

The ratio of INDIA CEMENT LTD reached 27.94 in 2009 and after that the ratio on a decreasing trend. Finally it reached 17.9 during that year 2013. The mean and standard deviation are 19.62 and 6.40 respectively.

The ratio of RAMCO CEMENT LTD was reached 37.26 in 2009 and after that the ratio on a decreasing trend. Finally it reached 29.52 during the year 2013. The mean and standard deviation are 23.05 and 3.19 respectively.

### Test of Significance of Operating Profit Margin

Above Table gives the relevant details of the operating profit margin of the five cement companies which differed significantly from each other and shows whether the ratio differ across five years. The two way Anova used .

### Hypothesis

#### Set-1: Ho

There is no significant difference in the values of the operating profit ratio of the selected cement companies.

#### Set-2: Ho

There is no significant difference in the value of the operating profit ratio of the selected cement companies during the different years.

Level of significance = 0.05

### Anova Operating Profit Ratio of Cement Companies

Sources of variation	SS	DF	MS	F
With rows	1347.821	9	149.7579	10.06794
Between columns	808.7845	4	202.1961	13.59326
Residual	535.4901	36	14.87473	
Total	2692.096	49		

#### Result

##### Set-1: Ho

The table value of 'F' at 5% for V =4, V2=36 is 1.96. Since the calculated value is more than the table value of the table the null hypothesis is rejected. Hence, the values of operating profit ratio of the selected cement companies differ significantly from each other.

##### Set-1: Ho

The calculated value of 'F' is 13.59 the table value of 'F' at 5% for V1=4, V=36 is 1.96. Since the calculated value more than the value the Ho is rejected. Hence the value of operating profit ratio differs significantly during the period.

#### Return on Long Term Funds Ratio of Cement Companies

This ratio establishes the relationship between net profit and the long term funds. The long term funds refer to the total investment made in business for long term. It is calculated by dividing earnings before interest and tax (EBIT) by the total long-term funds.

Return on long term funds is calculated on the basis of following formula

$$\text{Return on Long-Term Funds} = \frac{\text{Operating profit (EBIT)}}{\text{Long-term funds}} \times 100$$

#### Return on Long Term Funds Ratio of Cement Companies

S.No	Company Name	2009	2010	2011	2012	2013	Mean	S.D
1	Ultratech cement	27.93	27.43	15.83	21.9	21.09	22.83	114.18
2	Acc cement	31.43	35.8	20.78	21.26	25.46	26.94	6.53
3	Ambuja cement	28.19	27.04	21.63	21.93	25.52	24.86	2.97
4	India cement	17.84	11.66	3.74	12.06	9.29	10.91	5.09
5	Ramco cement	32.78	19.53	17.7	10.13	20.45	13.56	4.68

Above Table reveals that the ratio of ULTRATECH CEMENT LTD was 27.93 in 2009 and after that the ratio was decreasing trend. In 2013 it finally reached 21.09 among all selected 10 cement companies. The mean and standard deviation are 22.83 and 114.18 respectively.

The ratio of ACC CEMENTS LTD was 31.43 in 2009 and after that the ratio was decreasing trend. Finally it reached 25.46 during the year 2013. The mean and standard deviation are 26.94 and 6.53 respectively.

The ratio of AMBUJA CEMENT LTD was reached 28.19 in 2009 and after that the ratio on a decreasing trend. Finally it reached 25.52 during the year 2013. The mean and standard deviation are 24.86 and 2.97 respectively.

The ratio of INDIA CEMENT LTD reached 17.84 in 2009 and after that the ratio on a decreasing trend. Finally it reached 9.29 during that year 2013. The mean and standard deviation are 10.91 and 5.09 respectively.

The ratio of RAMCO CEMENT LTD was reached 32.78 in 2009 and after that the ratio on a decreasing trend. Finally it reached 20.45 during the year 2013. The mean and standard deviation are 13.56 and 4.68 respectively.



The ratio of SHREE CEMENT LTD was 32.66 in 2009 and after that the ratio on a decreasing trend. In 2013 it finally reached 30.64 during the year. The mean and standard deviation are 24.73 and 9.82 respectively.

The ratio of the BIRLA CORPORATION LTD was 30.24 and after that the ratio on a decreasing trend the below normal level. In 2013 finally it reached 12.41 during the year. The mean and standard deviation are 21.77 and 9.58 respectively.

The ratio of the JK LAKSHMI CEMENT LTD was 18.52 times in 2009 and after that ratio on a decreasing trend. In 2013 finally it reached 14.21 during the year. The mean and standard deviation are 14.4 and 5.88 respectively.

The ratio of the JK CEMENT LTD was 20.5 times in 2009 and after that the ratio on a decreasing trend. In 2013 it finally reached 18.12 during the year. The mean and standard deviation are 16.74 and 5.28 respectively.

The ratio of the PRISM CEMENT LTD was 23.45 times in 2009 and after that the ratio on a decreasing trend the below the normal level. In 2013 it finally reached 5.01 during the year. The mean and standard deviation are 13.60 and 8.53 respectively.

**Test of Significance of Return on Long Term Funds Ratio**

Above Table gives the relevant details of the return on long term funds ratio of the five cement companies which differed significantly from each other and shows whether the ratio differ across five years. The two way Anova used .

**Hypothesis**

**Set-1 : Ho**

There is no significant difference in the values of the return on long term funds ratio of the selected cement companies.

**Set-2 : Ho**

There is no significant difference in the value of the return on long term funds ratio of the selected cement companies during the different years.

Level of significance =0.05

**Return on Long Term Funds Ratio of Cement Companies**

Sources of variation	SS	DF	MS	F
With rows	1349.612	9	149.9569	7.239683
Between columns	1246.922	4	311.7305	15.04986
Residual	745.6749	36	20.71319	
Total	3342.209	49		

**Result**

**Set-1: Ho**

The table value of ‘F’ at 5% for V =4, V2=36 is 1.96. Since the calculated value is more than the table value of the table the null hypothesis is rejected. Hence, the values of return on long term funds ratio of the selected cement companies differ significantly from each other.

**Set-1: Ho**

The calculated value of ‘F’ is 15.04 the table value of ‘F’ at 5% for V1=4, V=36 is 1.96. Since the calculated value more than value the Ho is rejected. Hence the value of return on long term funds ratio differs significantly during the period

## **Conclusion**

Ratio analysis is helpful for any shareholder, investor, creditor banker or any other interested party who is more with the financial position of the company. Two way ANOVA helps in checking the significance of the study by comparing different ratios over the years which provides a good sense to the company as well as to the share holders. The result of the study indicates that Ultra-tech was found to be performing better and Acc cement was also performing well during the period. Therefore it concludes that other companies should modify their performance and adopt the same to improve their ratio analysis.

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