

Synopsis : Ph.D. Thesis

Global Marketing Strategies for Indian Aluminium Products – A Study

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Overview of Global Market for Aluminium

Aluminium is a relatively young metal of 120 years compared to steel, copper and other metals. In this short span, it has found extensive usage in every walk of human life; from pots and pans to airplanes, rockets and to space-age equipments. The metal is next only to iron in tonnage and usage. The ongoing globalisation has touched the Indian aluminium industry:

- Indian aluminium Industry (IAI) is one of the lowest cost producers of alumina (approx US \$ 118 per ton) and aluminium (approx US \$ 1020 per ton) in the world.
- IAI is replicating successful business model of world's leading aluminium companies. It represents a fine blend of revenue from alumina, primary aluminium and fabricated aluminium products.
- Access to high quality gibbsite bauxite reserves
- Cheapest energy (US 3 Cent per Kilo Watt Hour) from their captive thermal power plants.
- Most of plants use state of art technology due to up gradation
- Primary aluminium prices and long term alumina prices are cyclical, leading to fluctuations in earnings.
- Given its cost competitiveness and its high financial flexibility, where gearing (even after expansions) is expected to be low, IAI can look forward to increase its presence in aluminium business, where its global presence is small as compared to pure smelters such as Dubai Aluminium Co. (Dubai) and Aluminium Bahrain.
- Globally, aluminium leaders have reduced their business risk with fine blend of alumina, primary aluminium and fabricated aluminium products revenue streams. Also, these leaders have a presence in the global market.
- Healthy global average annual growth of 3.5 percent and Indian growth of 8 percent. This coupled with excess production allows for significant surpluses available for export.
- There is robust demand growth from China and South East Asian countries.

India is an important player in the aluminium sector in global markets, because of its abundant bauxite proven reserves of 3.04 billion Metric Tonne (MT). The bauxite is of good quality and easy to mine which makes the country one of the lowest cost producers of the metal in the world. Around 4-5 MT of bauxite is required to

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produce one MT of aluminium. India's bauxite reserves are sufficient for next 211 years of production. With production of 14 million tones in 2004, India accounted for around 8.7% of global bauxite production. India's production of aluminium aggregated 0.91 million MT in 2005, accounting for 3% of global production.

Indian Aluminium Industry started in 1942 with a small capacity of 2500 MT/year plant by Indian Aluminium Company Limited. The plant was a collaboration effort with Alcan of Canada. Since then it has grown from considerably. Today it markets 1.2 million MT of aluminium primary metal and 1.00 million MT of alumina which is an intermediate product.

2 ½ MT Bauxite gives 1 MT of alumina which is a chemical in the form of white powder. It is mainly used to smelt aluminium metal. 2 MT of alumina brings 1 MT of aluminium metal. That is 5 MT of Bauxite makes 1 MT of aluminium.

Aluminium Industry globally has rapid growth for last 4 decades. It has about 3000 uses. With its light weight and excellent properties it has wide uses from pots and pans to aircrafts and space-age equipments. The global growth per annum is 3-4 percent. Indian growth is around 8%. Despite this disparity, there is projected surplus in production that prompts this study.

Research in the field of Global Marketing of Indian aluminium is indicated as the researcher noticed in his experience the scattered, routine and old practices of global marketing. The efforts were temporary and did not have much impact. It was not a planned or team effort to utilize the resources or get maximum benefit to Indian Aluminium. That idea of global marketing has come in the present hypothesis of study.

Need for Research in Global Marketing of Aluminium Products

The study on global marketing of aluminium products and development of business from India is great importance considering the facts:

1. The Indian economy is doing well with consistent growth rates since last two decades.
2. The current rate of growth expected is around 9%.
3. To the growth in manufacturing aluminium sector in India are impressive. In 1992 the manufacturing

capacity was 0.6 million M.T. and as on date it is 1.2 million M.T. The state of art technologies is being employed. The quality standards of the products are upgraded to international levels.

4. The recent acquisition of large company Novelis of Canada by Indian aluminium manufacturer HINDALCO show the managerial capabilities in Indian aluminium industries in addition to basic financial capabilities of large profits and huge cash reserves available in the sector. HINDALCO has an installed capacity to make 0.4 million M.T. of aluminium per year. Novelis acquisition will add 3 million tones of product to its portfolio and a large European customer base. In other words HINDALCO present turnover of Rs.1100 Crore annually will increase to Rs.5500 Crore annually. It is also interesting to note that HINDALCOs products are at the lower end of the value chain where as the Novelis at the higher end. The value of the deal is 6 billion dollars for the acquisition.

Various Dimensions of the Research Problem

The reasons highlighted in the introduction has provided an ideal setting for the researcher to investigate what requires of an Indian aluminium company to take the opportunity in its stride. Further aluminium being a metal that is produced in commercial quantities only since 1886, Indian aluminium industry has a great opportunity to take on the global aluminium market. Given the rate of diffusion of technology, the information on prices and the organized bench mark of fixing prices, Indian aluminium industry has not caught up to its competitors world wide with a jolting phase. To compete globally apart from the technology and quality one also needs to develop a global marketing strategy that enables the Indian industry to reach its goals. This study endeavors at bringing a comprehensive understanding from such a perspective.

A wide range of variables, not typically encountered by domestic firms, characterizes the foreign markets. That is why global marketing is considered multi-faceted. Despite the complexities involved in global marketing, there are concepts and analytical tools that can help global marketers. Different marketing strategies suit different countries and an organisation should learn to adapt to these complexities to enhance global marketing share. We intend to explore some of them.

Objectives

The objectives of research are:

1. To ascertain the competition situation of the aluminium industry and the competitive strategies adopted by the Indian organisations in global markets.
2. To study the perceived customer preferences in global markets.
3. To study the promotional methods adopted by the Indian industry in global markets.
4. To develop future plans of the Indian industry for gaining competitive edge over the other countries.

Hypotheses to the Study

1. There is significant difference in futuristic mission set based on annual growth rates in global marketing.
2. There is significant difference in the attributes preferred for the global marketing on existing business dealing countries.
3. There is significant difference in the methods employed to derive competitive advantage based on existing business dealing countries.
4. There is significant difference in major marketing strategy chosen based on existing business dealing countries.
5. There is significant difference in promotional methods adopted based on annual growth rate in global marketing.
6. There is significant difference in the methods used to derive competitive advantage based on major marketing strategy.
7. There is significant difference in the methods used to derive competitive advantage based on different new countries.
8. There is significant difference in the promotional method suggested based on new business development countries.
9. There is significant difference in quality standard adopted based on the attribute insisted by the customer.

10. There is significant difference in quality standard adopted based on vital products the company manufactures.

Hypothesis Testing

In all ten null hypotheses are rejected:

1. Annual Growth in Global Marketing vide Futuristic Mission.
2. Existing Business Dealing Countries vide Attributes Required for Global Presence.
3. Existing Business Dealing Country and Method of Deriving Competitive Advantage.
4. Existing Business Dealing Countries vide Major Marketing Strategy Adopted.
5. Annual Growth Rate and Promotional Methods Adopted.
6. Major Marketing Strategy and Method of Deriving Competitive Advantage.
7. New Business Development Countries vide Futuristic Mission.
8. New Business Development Countries vide Promotional Method Suggested.
9. Quality Standard Adopted vide Attribute Customer Insists.
10. Vital Products Company Produces vide Quality Standards Adopted.

Indian Aluminium Marketing

India is 5th largest in Bauxite reserves and 7.6 per cent of world reserves. The first 4 are Guinea 22.8 per cent, Australia 20.2 per cent, Brazil 10 per cent and Vietnam 8.2 per cent of world reserves. In absolute terms India has reserves of 3.04 billion MT. Additionally, the quality of Indian Bauxite is good with about 52% aluminium oxide.

- Limitations are low capacity of production of metal at 1.3 million MT/year. Aluminium plants rely on their captive power plant that currently costs 3 cents/unit. Unreliable and expensive power further hampers this low production levels.
- Good LME prices since last 2 years are bullish.
Aluminium: + 2400 US Dollars per M.T.
Alumina: + 350

- Current Indian exports now are:
0.4 Million MT of Aluminium metal
1.1 Million MT of alumina

Global Aluminium Patterns

Global Aluminium demand pattern

- There is large growth in aluminium product demand in China.
- Demand in Western world is static.
- Medium growth in demand in other Asian countries.
- Medium growth in demand in other developing countries.

Global Marketing of Aluminium Products

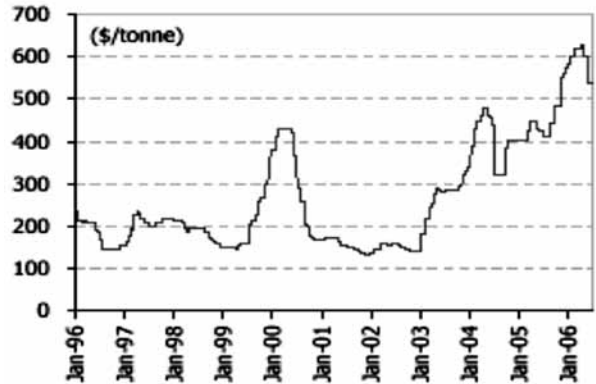
Among the 4 Ps of global marketing are (i) Price, (ii) Product (iii) Place and (iv) Packaging. Of these the 3 Ps apply in aluminium products as it is an industrial commodity. They are (i) Price, (ii) Product and (iii) Place. The three are discussed:

(A) Alumina Market Issues:

- Alumina, chemical product Al_2O_3 .
- Metallurgical grade Alumina market globally growing at 3%.
- Half of met grade Alumina, 25 MMT is traded on medium and short (spot) contracts. Balance 25 MMT is produced in-house.
- Alcoa USA is global leader in alumina.
- Trade controlled by a dozen traders in the field.
- Pricing based on
 - Fixed prices or tender prices.
 - London metal Exchange (LME) prices for aluminium metal.
 - On tolling basis.
- Quality and timely deliveries are important.
- Non metallurgical or chemical grade alumina market gives value addition and is a growing market.

The figure given under shows the LME price trends for spot alumina prices for 10 years period. The prices, as may be seen in the graph vary considerably. The

variation is from 130 US \$ per MT to 630 US \$ per MT. It is hence imperative to be on lower side, cost wise to get advantage of sale on spot prices.



(Source: www.lme.co.uk)

Alumina: Spot Prices

(B) Aluminium metal:

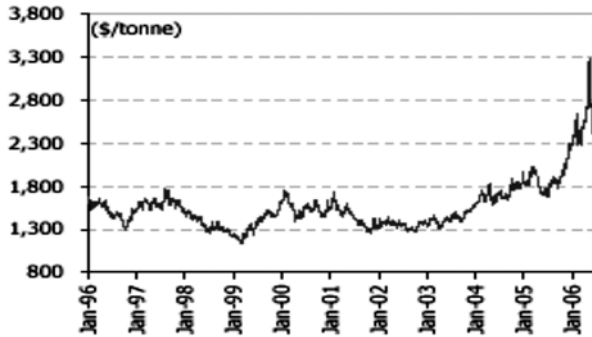
i) Price: The export pricing for alumina and aluminium metal fall in five categories namely;

- LME based
- Forward contracts on LME prices
- Fixed price
- Combination of LME and fixed price formulae
- Tender based

a. LME based prices: The prices follow as per London Metal Exchange prices.

b. Forward contracts on LME prices: It is practice in non-ferrous metal marketing to book orders for tonnages for one or two year delivered. The deliveries will be on monthly basis. The price for each delivered lot will be usually previous month average LME price or 3 month average price. Sometime if the quality is good then a mutually agreed premium will be added to the price. This will be applicable for alumina too.

LME prices vary considerably within a day and over months. A graph showing LME spot prices for 10 years for aluminium metal is placed at figure below. The price during the period was in the band 1200 US \$ to 3300 US \$ per MT.



(Source: www.lme.co.uk)

Aluminium: Spot Prices

- c. **Fixed Price:** If the quantities are large and a definite price realization is necessary then companies enter into fixed price contracts like any other industrial commodity.
- d. **Combination of LME and fixed price formula:** Some sale agreements are based on formula incorporating fixed price in past and variable part based on LME. This system assumes a minimum price especially in Alumina marketing.
- e. **Tender base pricing:** Many government bodies in Asia follow tender system in fixing prices. The selected manufacturers will be requested to send sealed bids for delivery schedules of tonnage are given in the enquiry. The lowest bidder gets the contract. While quoting prices only the marketer has to take care of LME movements and profitability to the organisation.

Other price related aspects:

1. No hedging is done by Indian marketers.
2. No tolling is adopted by Indian companies. Numbers of European and Russian companies follow tolling.
3. Traders are important in the market due to historical reasons.
4. High cost of logistics.

ii) Product: The quality and reliability play an important role in global markets. Indian aluminium industry is geared up to meet the quality requirements. It has built-in systems to assure quality products.

iii) Place: The place or location gives advantages to

Indian aluminium industry to supply to Asia, China and Europe. The transport costs are relatively cheaper to china.

Current and New Markets for Aluminium Products

The Researcher made special study of Secondary data where India can enter in global markets and global alliances that have long range prospects. The two growth countries noticed from the published statistics are Canada, China and West Asia. From analysis it is noted that entry in West Asia will be beneficial.

- No hedging is done by Indian marketers.
- No tolling is resorted to by Indian companies. Numbers of European and Russian companies follow tolling.
- Traders are important in the market due to historical reasons.
- High cost of logistics.
- Investors invest in aluminium as in others royal metals.

Global Marketing of Aluminium Products

Demand patterns of aluminium region wise is shown in Table below:

'000 tonnes	2002	2003	2004	2005	2006
USA	5410	5695	6380	6380	6540
Japan	2200	2300	2370	2417	2466
Europe	6015	6315	6470	6664	6797
Asia	3533	3968	4307	4500	4700
Other	2482	2502	2543	2761	2851
Western World	19640	20780	22070	22723	23354
CIS	850	950	1000	1050	1200
China	4200	5200	6000	6700	7600
Other	690	822	881	922	968
Eastern Countries	5740	6972	7881	8672	9768
Total	25380	27752	29951	31395	33122

(Source: Macquarie Research, Page 4, October 2004)

Demand by Region

The long term projections of aluminium consumption and consequently consumption of metallurgical grade alumina is projected that for 47.20 million for year 2015 MT of metal the alumina of metallurgy grade required. This will be 95 million MT plus about 10% as chemical alumina should be approx 105 million MT. That is an

additional manufacturing capacity of 3 million MT has to be build up every year.

Strategic Players in the Market

• Alcoa	USA
• Alcan	Canada
• Renolds	USA
• Billiton	Netherlands/UK
• Rusal	Russia
• Aluminium Pechiney	France
• Sumitomo	Japan
• Venalum	Venezuela
• Glencore (Trader)	Switzerland

India's Underlying Opportunity

- Emerging global economy
- 2006 GDP growth > 8% p.a.
 - Robust industrial production growth
 - Accelerated investment in infrastructure
 - Wealth of underexploited resources
- 4th largest worldwide reserves of coal
- 5th largest worldwide reserves of bauxite
 - Lower capital costs of setting up smelters/mining projects
 - Available experienced talent pool in aluminium production
 - Locational advantage
- Supply to SE Asia / China
- Alumina is an intermediate product to make or smelt aluminium metal. The logistics and delivery time are important for metal production schedules. Here, the bargaining power of customer is low, whereas in primary metal it is high.
- The growth of aluminium, being an industrial product, markets depends on economic indicators of a country like GSP, FDI, consumption pattern, general usage, cost of substitute materials and the local government policies.

Global Aluminium Production Growth

The growth in Asian countries and China are quite impressive in 4 year period. The capacity growth Europe is slow.

Research Design Frame work of the Study

The researcher followed the following steps frame works for the study:

1. Preceding the researcher visualized the area of studies where he desires to extract detail meaning. A discussed different proposal with his guide, then a project is selected.
2. Classifying the research question: by exploration the management dilemma are perceived and the area is selected the literature review is made to get different perspectives if research proposal was made.
3. Research design: in this phase the different steps in the research were detailed regarding the type, purpose, timeframe, scope, and environment the phases are:
 - Data collection and preparing which included design of questionnaires collection sample size and application.
 - Data gathering which is unique to the particulars quantitative research
 - Insight development and interpretation of data.
 - Analysis and interpretation
 - Decision by the research based on
 - Report analysis preparation

In devising framework, the researcher

- Formulated a research question based on perceived gap in knowledge.
- Did a literature review to survey extent of gap in knowledge.
- Hypotheses proposals were made that test research objectives and that are believed to be logically related to the problem.
- Conducted empirical test using questionnaires.
- The questionnaires were sent to the selected sample population and the responses were collected.
- Analytical and descriptive statistics were used to study the data. Statistical computer programs helped analyse the data.
- Conclusions or inductive inferences were drawn based on acceptance or rejection of hypotheses.

Primary – first hand information obtained by from the survey made.

Secondary data – published books, data from companies and market consultants. West Asia region was found attractive from the secondary data study

Parameters of study and conceptual relationships

Understand focus of manufacturers and their preparedness for global marketing challenges. Study is restricted to Alumina and primary aluminium metal in the form of ingots, billets, study in global marketing.

Research Instrument

Primary Data: First hand information was obtained from the respondents through structured questionnaire. An interview schedule was constructed to elicit information from the respondents. The researcher chose an interview schedule since the respondent has to be reminded to answer the questions put forth in the questionnaire. Moreover, the researcher had a stringent requirement for the data to be pure and in all senses comprehend the very spirit of the questionnaire and thus the research. The researcher could also clarify any doubts to the respondent and explain the objective of each question when ever the respondent raised clarification.

Researcher had to construct two sets of questionnaires. One for enabling the profiling of the large aluminium industry in India and second questionnaire was distributed across all strata of respondents, the strata decided by the size, number of years in business and the position of the respondent in the organisation. The questionnaire was constructed and each section concentrated on particular aspect of the industry. The questions were both open ended and close ended. In close ended, questions consisted of dichotomous, multiple choice and rating scales, to elicit his association with the question posed. The questions also include investigative type wherein multiple choices have been given to the respondents. The investigation questions have given the foundation for creating the research data collection investment in addition measurements question.

Secondary Data: The sources for secondary information was from published annual reports of five aluminium producers in the country namely, Hindalco, Nalco, Balco, Indal and Malco, data from London Metal Exchange, Indian Aluminium Association, and studies

published in various trade journals and conducted by various other organisations.

Literature Surveys: Studied the current literature on the subject and found 121 articles of immense value. The articles range on related subjects like, global advertising, global marketing strategies for similar metals, entry strategies, relationships, ethics and social responsibilities

Sampling Plan: The researcher developed his research plan taking the respondents who had the requisite knowledge of the aluminium industry. The sample size was taken large to eliminate bias.

Parameters of Study and Conceptual Relationships:

The main focus of the researcher to the study is to understand the attitude and preparedness of the manufacturers to meet the global marketing challenges and their commitment to explore markets outside India. The title of the project will neatly fit into International Marketing and preparedness of Indian alumina and primary Aluminium to Global Marketing Challenges, hence aptly can be conceptualised as a Marketing Study.

The study deals in intermediary product namely, Aluminas and unwrought (pig) aluminium in the form of billets, ingots only. The study excludes value added products of aluminium metal like sheets, castings, wires, foils, extrusions, alloys etc. The first year of the tenth planning (2003-04) is the base year of this exploratory study.

Scale of Refinement and Validation:

The questions in the questionnaires were refined. The characteristics of a good measurement are that the tool should be an accurate indicator of what the researcher is interested in measuring. In addition the tool should be easy and efficient. The criteria for evaluation of a measurement tool are validity, reliability and practicality.

- Validity: means that we are measuring what we want to measure. There are a number of types of validity including:
 - Face Validity - whether at face value, the questions appear to be measuring the construct. This is largely a "common-sense" assessment,

but also relies on knowledge of the way people respond to survey questions and common pitfalls in questionnaire design;

- Content Validity - whether all important aspects of the construct are covered. Clear definitions of the construct and its components come in useful here;
- Criterion Validity/Predictive Validity - whether scores on the questionnaire successfully predict a specific criterion.
- Concurrent Validity - whether results of a new questionnaire are consistent with results of established measures.
- Reliability: Implies the consistency or repeatability of the measure. This is especially important if the measure is to be used on an on-going basis to detect change. There are several forms of reliability, including:
 - Test-retest reliability - whether repeating the test/questionnaire under the same conditions produces the same results; and
 - Reliability within a scale - that all the questions designed to measure a particular trait are indeed measuring the same trait.
- Practicality: Concerned with various factors, such as level of respondents, convenience, interpretability.

The validity of scientific measurement is ensured by making the data precise. The internal validity is ensured by the researcher by making the questionnaire to get data what it is supported to measure.

Reliability and Validity

Validity of the questionnaire was very important to this survey. The questionnaire was administered on a sub-sample to assess the following validity – Face, Content, Criterion and Concurrent. On the ensuing discussion with the sub-sample and the analysis of the questionnaire, the researcher had modified the questionnaire to resolve the issues raised and understood from discussions and analysis from the pilot study, to bring in greater clarity and precision. Thus the measure of validity was ensured.

The aspect of reliability was also ensured, by giving the questionnaire to the same respondents in the sub sample at different points in time. The closeness of

the open ended questions and the repeated choice of the same alternative had ensured the questionnaire’s reliability of its application and ensuring the eliciting of adequate data for analysis.

Sampling Procedure

The researcher developed his research plan based on a snow ball sampling method, in the sense, all companies whose production collectively amounted to more than 75% of the total primary metal production in India, were included as respondents. Three companies, namely National Aluminium, Hindustan Aluminium and Madras Aluminium qualified as the candidate for being a respondent, for answering the profiling questionnaire. With respect to the general questionnaire, the researcher adopted a snow ball sampling technique, which helped the researcher to identify the respondent who possessed the requisite knowledge to answer the general questionnaire.

Industry segment	Total no. of persons available with knowledge (universe)	Sample chosen at random Nos.	No of Cos.	Replies received
Primary produces	124	31	3	26
Alloy makers	8	2	1	1
Extruders	12	3	2	2
Sheet producers	12	3	2	3
Foil producers	8	2	1	2
Forging producers	4	1	-	-
Casting producers	8	2	1	2
Electrical cables	9	2	2	2
Channel players	10	3	2	3
Experts in the field/ End users	12	3	-	2
	207	52 questionnaires sent	14	43

Snow Ball Sampling

The universe of knowledgeable persons in the industry was checked from Aluminium Association of India by discussions. As no written data is available on the subject, there are about 207 knowledgeable officers who know global marketing of alumina and aluminium metal. The names of the knowledgeable people who know aluminium global business were collected from aluminium association and further cross checked by discussions with the senior officers of the exporting companies.

Stratified Random Sampling

Stratified random sampling was adopted to cover all important sections of the industry for the study of the industrial product specially the aluminium export, being the theme of the study. Randomness in the universe of 207 numbers and choosing to 52 in total and going as per each category was achieved by 207 numbers of chits and picking the paper chits at random. The method adopted is considered appropriate for getting the requisite responses for the questionnaire framed. Unless the researcher understands the universe and its classification, he could not have developed the procedure for stratifying the sample selection from the universe.

The summary of the sampling adopted are:

The sample size of 52 (fairly a large sample to provide a normal distribution) out of 14 companies qualified to be the respondent to this survey, based on stratified random sampling criteria set in by the researcher to eliminate the bias. This sampling plan enabled the researcher to cover all the players for the general questionnaire enabling the researcher to achieve the objectivity of studying the Indian Aluminium Industry holistically.

Demographic Information of the Customer (sample profile)

- Officers at different levels in aluminium manufacturing. The officer's works in different development and location in India.
- Officers in other aluminium companies like, casting, extrusion, forging, fabrication, packing, building and construction, exporters and the like who are users of aluminium products in different forms.

- Small industry owned and partners who use these products.
- Marketers and exporters of aluminium products.
- End users of the products.

Data Analysis

Frequency and Cross Table Analysis

In the first phase of response analysis, the 43 numbers of responses received were collated, studied and tabulated. The statistical analysis of each of the question in the questionnaire was made with the help of a computer program. The responses were tabulated in frequency tables. In case of multiple choice questions, the frequency of each response to each attribute was taken into account. Here the valid total choices will be more. Based on the frequencies a graph showing the frequency and options in question was drawn. Inferences were made which represented the opinion of the respondents. The details are given in sub chapter 4.1

In the second phase of analysis, cross tables were made to bring in the relationship aspects between different parameters and find percentage of responses. The attributes are:

- Customer satisfaction and ownership type
- Mode of communication and ownership type
- Major marketing strategies and ownership type
- In phase three, the ten hypotheses were tested by Chi-Square testing. The results were recorded after each test.

Rationale for using the Frequency and Cross Table Analysis

Frequency table is a simple device for arranging data. It gives data by assigned numerical value with columns for percent, valid percent adjusting for missing data and cumulative percents. The other co-ordinate will be the response variable. The data is presented in tabular format and by pie chart or a bar chart. The values and percentages are more easily understood in this graphic format. In graphs by visualization the relative positions are appreciated. This simple technique is used by the researcher.

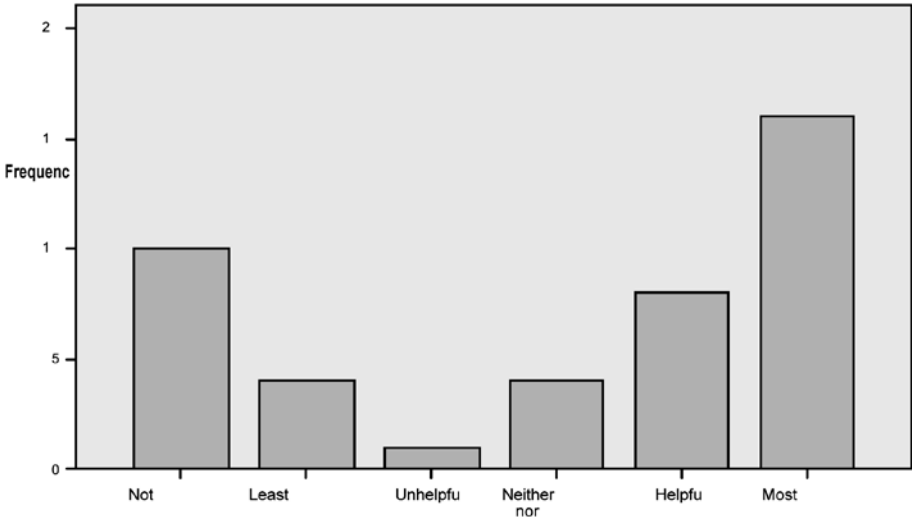
Cross tabulation is a technique for comparing data from two or more categorical variables. Cross tabulation is

used with demographic variables and target study of the variable with operationalised measurement questions. Cross tables will have rows and columns showing to the level of variables. Each cell count of the cases of joint classification of rows and column percentages and total percentages are noted. This technique is used by the researcher in this study.

Role of Global Traders in Alumina Marketing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	10	23.3	23.3	23.3
	Least Unhelpful	4	9.3	9.3	32.6
	Unhelpful	1	2.3	2.3	34.9
	Neither Helpful nor Unhelpful	4	9.3	9.3	44.2
	Helpful	8	18.6	18.6	62.8
	Most Helpful	16	37.2	37.2	100.0
	Total	43	100.0	100.0	

Role of Global Traders in Alumina



Inference:

The firms use different methods to understand the nature of country and the markets in which they prefer to enter. The researcher with the above tries to understand the role of global traders in facilitating international markets.

With respect helpfulness of the role of global traders, 37.2% of the respondents felt their role as most helpful; where as 18.6% felt their role to be helpful and 9.3% felt that their role is least helpful. 23.3% of the respondents did not fall under the purview of this question.

Hypothesis Testing:

An example of hypothesis test done is:

Major Marketing Strategy and Method of Deriving Competitive Advantage

	Quality Product	Customer Service	Customer Base	Right Price	Product Promotion	Row Total
Expand Customer Base	24	20	19	19	18	100
Right Quality Product	31	25	23	27	22	128
Good Customer Service	29	26	24	24	21	124
Competitive Price	24	21	20	23	19	107
Promotion	20	17	16	18	17	88
Column Total	128	109	102	111	97	547

	Quality Product	Customer Service	Customer Base	Right Price	Product Promotion	Row Total
Expand Customer Base	23.4	19.93	18.65	20.29	17.73	100
Right Quality Product	29.95	25.51	23.87	25.97	22.7	128
Good Customer Service	29.02	24.71	23.12	25.16	21.99	124
Competitive Price	25.04	21.32	19.95	21.71	18.97	107
Promotion	20.59	17.54	16.41	17.86	15.61	88
Column Total	128	109	102	111	97	547

Formulated Hypothesis

H_0 : There is significant difference in the methods used to derive competitive advantage based on major marketing strategy.

H_1 : There is marked difference in the methods used to derive competitive advantage based on major marketing strategy.

Choice of Test of Hypothesis: The sampling being judgmental, non-parametric statistic needs to be used. χ^2 being both a parametric and non-parametric is considered adequate test for the situation.

Criterion for Accepting or Rejecting the Null Hypothesis:

If the probability of the χ^2 statistic calculated is less than 0.05, reject the null hypothesis and accept alternative hypothesis; else accept null hypothesis.

Result

The probability of χ^2 is 1, being greater than 0.05, the null hypothesis accepted, implying that there is significant difference in the methods used to derive competitive advantage based on major marketing strategy.

The One Way ANOVA Tests

The One-Way ANOVA compares the mean of one or more groups based on one independent variable (or factor).

Hypotheses

Null: There are no significant differences between the groups' mean scores.

Alternate: There is a significant difference between the groups' mean scores.

One Way ANOVA – Global Presence Attribute, Factor based on the position of the respondent						
		Sum of Squares	df	Mean Square	F	Sig.
Global Presence Attribute - Promotion	Between Groups	.955	2	.478	1.952	.155
	Within Groups	9.789	40	.245		
	Total	10.744	42			
Global Presence Attribute - Quality of Product	Between Groups	.652	2	.326	3.464	.041
	Within Groups	3.766	40	.094		
	Total	4.419	42			
Global Presence Attribute - Market Share	Between Groups	.391	2	.196	.948	.396
	Within Groups	8.260	40	.206		
	Total	8.651	42			
Global Presence Attribute - High Tech Production Facility	Between Groups	1.381	2	.690	2.994	.061
	Within Groups	9.224	40	.231		
	Total	10.605	42			
Global Presence Attribute - Favourable Government Policy	Between Groups	.744	2	.372	2.001	.149
	Within Groups	7.442	40	.186		
	Total	8.186	42			
Global Presence Attribute - Does not exist	Between Groups	.011	2	.006	.223	.801
	Within Groups	.964	38	.025		
	Total	.976	40			

Inference: The researcher from the above table understands that there is a significant difference in the mean scores for Global Presence Attribute classified based on the position of the respondent. This implies the way the management thinks about Quality of Product and High Tech Production attribute are the two differences among the groups and all other factors are considered similarly by the respondents. This is validated by the significance levels less than 0.10 significance.

Pearson Correlation Test

The Pearson R correlation tells you the magnitude and direction of the association between two variables that are on an interval or ratio scale. The correlation

coefficient is a number between +1 and -1. This number tells us about the magnitude and direction of the association between two variables.

The **MAGNITUDE** is the strength of the correlation. The closer the correlation is to either +1 or -1, the stronger the correlation. If the correlation is 0 or very close to zero, there is no association between the two variables.

The **DIRECTION** of the correlation tells us how the two variables are related. If the correlation is positive, the two variables have a positive relationship (as one increases, the other also increases). If the correlation is negative, the two variables have a negative relationship (as one increases, the other decreases).

Preferred Mode of Global Entry Strategy and Adequacy of Marketing Strategy

Preferred Mode of Entry - International Markets *Adequacy of Marketing Strategy Cross tabulation					
Count					
		Adequacy of Marketing Strategy			
		No	Yes	Maybe	Total
Preferred Mode of Entry - International Markets	Direct Method	2	10	7	19
	Indirect Method	0	0	6	6
	Direct and Indirect Methods	0	2	1	3
	All Methods	2	9	4	15
	Total	4	21	18	43

Symmetric Measures					
		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	-.183	.149	-1.190	.241 ^c
Ordinal by Ordinal	Spearman Correlation	-.079	.156	-.509	.614 ^c
N of Valid Cases		43			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Inference: Researcher from table 5.4.2 come to understand that the adequacy of the marketing strategy's influence over global entry strategy is null. It implies that the adequacy of marketing strategy does not influence the entry strategy devised by each respondent. This result is derived from Spearman Correlation, which provides a correlation value of -0.079, implying no correlation.

Achievement of Objectivity

By large sampling of 43 responses out of a total universe of approx. 207 in all section of the industry and geography in aluminium industry; consisted of 14 companies.

- SSI Units
- Medium Scale Units.
- Large Units
- Public Sector
- End Users
- Marketers, Logistics and Planners.

Limitations of Study

- Geographical scatterings of the respondents from whom the data needs to be collected.
- Since majority of the respondents identified for this survey where from top management and middle management cadres of 14 companies. Getting their time for the survey was indeed a limitation.
- The limitation is also the number of respondents who had the requisite knowledge on all the aspects of the industry and in particular in global marketing of the product.
- The number of large channel players (the marketing channels) in this industry.

Findings

General respondents

- The two predominant modes of communication among the respondents of aluminium industry are direct face to face communication, backed up by emails, telephone and posts.
- The frequency of assessing customer satisfaction by the respondents from the aluminium industry is half yearly. Customer meets are organized predominantly once in year by the respondents of aluminium industry.
- The prime producers of aluminium are supplying right quantity and quality goods to their customers. More than half of the respondents possess a average finished goods inventory of 2 weeks and a fifth of the respondents had a average inventory of one month.
- The major marketing strategy adopted by Indian Aluminium Industry is the production of right quality

product, supported by creation of good customer base and competitive pricing.

- Futuristic mission based on the position of the respondent: Proprietors/ partners set the futuristic mission for the company as expanding capacity for global competition, producing quality product and improving customer service.
- Effect of long term economic policies based on position of the respondent: Both middle management and top management opined that economic policies are helpful; while proprietary/ partnership respondents felt otherwise.
- Major Marketing Strategy based on ownership type: Proprietary firms and partnership firms adopted predominantly right quality and competitive pricing as their marketing strategy; while limited companies adopted customer service as predominant strategy followed by right quality product.
- Attitude towards the usefulness of branding based on ownership type: Proprietary firms and limited company predominantly accepted that branding is useful for enhancing their marketing capability

Respondents from Manufacturers

- Nearly half of the respondents paid fixed percent royalty; while a quarter employed profit sharing method and the rest, fixed fee agreements.
- Half of the respondents felt that the impact of the government policies on the production activities is average.
- New collaborations and innovation are perceived as most helpful corporate strategies, for the development of global markets.
- Both forward and backward integration are used by companies in Indian Aluminium Industry.
- The attrition rate of the marketing employees in the industry varies significantly from company to company, some having as low as less than 5% and some as high as 20 to 30%.
- Attending immediately to the complaint, conducting discussion across the table, proper and regular interaction with the customers are the measures adopted by Indian Aluminium Industry to redress complaints from their customers.

Conclusion

Aluminium being an important metal of the future and has good growth prospects due to its profound existing application and new application is being developed internationally. In Aluminium industry technology provides the distinguished quality leadership, coupled with excellent logistics and waste reduction can also help achieve the objective of cost reduction too (Aluminium industry is a price sensitive industry) which will propel Indian Aluminium industry much better among international competitors. The Indian Aluminium industry recognizes the need to leverage on their existing core competencies and build new ones in the areas of quality, value addition to customers, competitive pricing and better customer service. To achieve the international quality standards Indian Aluminium firms are aligning either to LME standards. Indian Aluminium industry players should recognize that being a demand oriented market and industrial market; customers will have the upper hand in terms of quality, timely supplies, reliability and value for their money. The procedure of tolling is prevalent in this industry than the existence of counter trade which can be assumed nil. Indian Aluminium industry agrees that faster growth can be achieved in terms of spread and geography through the route of acquisition and joint venture.

Indian aluminium industry currently exports to United Kingdom, United States of America, Dubai and other countries like China, South Korea and Canada. To gain an export market all of the attributes, say promotion, quality of product, customer base and service, high technology production facility and favourable government policy are required. Analysis by researcher suggests that no single factor can help capture International markets. Thus the firm exporting and seeking for international markets should develop holistic strategies, rather than concentrating on any one attribute. Moreover to derive competitive advantage by Indian Aluminium firms abroad, again a complete strategy focusing on producing quality product, excellent customer service, country specific pricing and better product promotion has to be envisaged. What the researcher has evolved from this work is that, a complete inclusion and development of these attributes, levels the success of

Indian aluminium industry internationally and can help compete with established players in global market and gain a niche for itself.

Recommendations

- Indian Aluminium Industry has to increase the speed of market entry, in order to provide first entry advantage to most of the unexplored markets. This will provide a substantial edge of Indian aluminium industry over other international competitors.
- To demonstrate the seriousness of our presence to international customers, setting offices in the country of export is essential. This will make the international customer feel at ease, since the supplier is always accessible and the requirement of the company can be well understood.
- Strategic vendor relationship with industrial consumers has to be encouraged in export markets. One suggested way is to lock these industrial consumers in long term contracts. Other is to demonstrate the commitment of Indian aluminium industry to their objectives. Strategic vendor relationship needs to be obtained even if it requires to under price. The under pricing strategy would work if the Central, State and Municipal bodies are able to subsidize the taxes and tariffs. The indirect advantage to the government is that the Balance of Payment position can be reduced to the extent of these exports plus the foreign exchange derived of such exports.
- The approach of international marketing should be able to establish Indian foothold in this industry at the initial entry level. A consortium can be set up by these firms in the industry, to promote national competence advantage in this industry. Once Indian aluminium industry establishes foothold in this metal internationally then firm individually can establish their position easily.
- Quality up-gradation by bringing quality in all aspects of manufacturing and service is an essential prerequisite. In any industrial product, quality is the main focus. Indian Aluminium Industry should set the highest standards for quality, as quality viewed in itself as a strategy can attract customer to Indian

Aluminium Sector and companies can easily form strategic tie-ups.

- Global Marketing strategies to suit specific markets are to be evolved and entry strategies evolved. Country specific strategies are important as the application of the end product will differ from countries to countries. Understanding their culture and the functioning of the government can always make better inroads to global marketing. If the Indian Aluminium Association can persuade the government to set up special task force to understand and study this feasibility of long term contracts, the industry will be benefited and in most cases will be reciprocated by other governments too.
- Government of India should allow import of old plants for speedier project implementation to increase capacity. This will allow for faster capacity expansions.
- Aluminium industry should build its own infrastructure like rail wagons or ships for its growth and enter into long term contracts for space such that logistic schedules are maintained and concerns over the problem of transportation avoided. All this aimed at timely delivery as an important indicator of customer satisfaction.
- As a global marketing strategy companies should go for long term contracts based on LME average prices, on put and call basis or suitable formula to develop large customer base. Such a cap and floor should protect the industry from price fluctuation and secure profits. Such strategy of put and calls should not affect the customers, since the risk is managed by a third party or LME, relieving both the customer and Indian Aluminium respondents from the concerns of fluctuations.
- The process of standardization should be evolved by Indian Aluminium Industry such that any global customer is assured of the quality of Indian aluminium. These standards should be the minimum benchmark the respondent companies should adopt.
- Industry should look for growth by acquisition, joint venture or by managing sick units. Acquisition overseas will help global marketing easier and

better and Indian Aluminium companies can look into markets deeper and wider from that acquired location.

- Even though India has quality bauxite resources in India, acquiring stake in countries with bauxite resources help Indian companies in aluminium sector to restrict entry of competitors as raw material is critical to survival in the industry. Thus Indian companies should make efforts to acquire stakes in bauxite rich mines.
- It is recommended that value addition be planned in phases, such that customer requirement is met. Value addition brings in more margins than primary metal and move up the value chain.
- It is recommended to acquire state of art technology to compete in international markets. Technology will enable the industry to process the raw material at a lower cost and produce finished products higher up the value chain, bringing better margins and creating a global edge for Indian Aluminium companies.
- Regular customer meets overseas will help facilitate interaction and understand requirements which enable the Indian aluminium industry to become strategic partners which will enable easy access to global markets.
- Advertisement for aluminium as a commodity by the industry will popularize the per capita consumption of aluminium in developing world. Like Gold Council, aluminium council can fund research and development to develop new products, technology and thus enabling new customers and new markets.
- Proactive approach in market regarding pricing, service and attending customer complaints is recommended. All the above attributes are strategy by itself and can be pursued in combination to become successful in global markets

Proposed Model for Aluminium

- Evolve global entry and promotional methods.
- Value growth by acquisition, joint venture or by managing sick units in line with global growth on fast lane like steel industry.
- Acquire state of art technology to stand in competitive markets.
- Regular customer meets overseas to facilitate interaction and understand their requirements which enable the Indian aluminium industry to become strategic partners which will enable easy access to global markets.
- As a global marketing strategy companies should go for long term contracts based on LME average prices, on put and call basis or suitable formula to develop large customer base.
- Proactive approach in market regarding pricing, service and attending customer complaints in global markets.