

Copperia: A Passage to India

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Introduction

Copperia is the world's largest producer of bimetallic conductors for B2B customers and has long enjoyed a commanding position in this category in markets such as the United States and China. Originally an American company, it was taken over by a small Chinese establishment in 2007 in order to expand the latter's global reach. The case focuses, primarily, on the possibility of the firm's entry into India as part of their global strategy. Such an initiative would entail considerable risk and involve commitment of a lot of capital to set up manufacturing facilities and distribution networks. The company must first figure out whether the demand for their products in India will grow sufficiently in the next few years to justify such an investment. The products are relatively unknown in India, and many people familiar with the market say that they cannot be priced competitively. The company cannot ignore such warnings, but neither can it afford to pass up on the Indian market.

Copperia-A Company Overview

In 1915, when a group of five engineers in Rankin, Pennsylvania first created a permanent metallurgical bond between copper and steel, they probably had little idea of how valuable their invention would become. This bond originally was made under a molten weld process. When these pioneers discovered the power of two metals over one, they paved the way for a strong carbon steel and light weight aluminium to offer the electrical conductivity efficiency of copper in a wire that is stronger, lighter and less expensive than a solid carbon wire.

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This product, a Copper clad steel (CCS) wire, was patented under the brand name **Copperia** and it was soon adopted as an alternative to solid copper wire in many conductor applications, particularly those where copper would be too ductile or would not offer the breaking strength of steel. The original use, however, was for watch springs or the balance spring which controlled the speed at which the wheels of the timepiece turn, and thus the rate of movement of the hands of the watch. These springs required corrosion resistant and durable material. Indeed, the copper cladding prevented corrosion.

Originally, the company was founded as the **CCS Company**, but in 1924, changed its name to the **Cuprum Steel Company** (CSC). In 1927, the company installed itself in a former axe factory in Glassport, Pennsylvania. The federal government of the United States (US) was the company's major client throughout the Depression and World War II, and its patronage is largely responsible for keeping the company solvent in that time of severe economic downturn. The company was listed on the New York Curb Exchange in 1937 and on the NYSE in 1940.

In 1939, CSC opened its second factory in Ohio, manufacturing steel billets, which is the freshly made steel in the form of a metal bar or rectangle. The unformed billets can be used in striking currency such as coins and as reserves, similar to gold bars. After the war, the resurgence of the American economy helped CSC thrive. The company's management offices were relocated to Pittsburgh soon after the war. Though the company did pay attention to organic growth that is by ensuring a considerable investment in existing divisions, acquisition became a focus area for achieving growth. The passage of Inorganic Growth for Copperia is represented in Table 1.

Table 01 - The Inorganic Growth of Copperia

Year	Growth Strategy	Company	Location	Sector
1951	Acquisition	Flexis Wire Co.	New York, USA	Wire manufacturing
1952	Acquisition	OSTC	Ohio, USA	Steel tube manufacturing
1957	Merger (lasting 5 years)	Super Steel Company	Ohio, USA	Stainless steel finisher
1966	Joint Venture	Fujuhira Ltd.	Numazu, Japan	Wire manufacturing.
1972	Acquisition	Regal Tube division, Lara Seiglera	Chicago, USA	Tube manufacturing
1978	Joint Venture	Berico International	Brazil	Bimetallic Wire production
1980	Buying Stake	Grardian Oil Company	Houston, USA	Oil supplies
1980	Acquisition	SeamLess Tubing	Maryland, USA	Tubes and conductors
1988	Acquisition	Copperply Division, NSC	USA	Bimetallic conductors
1989	Joint Venture (lasting for 3 years)	Fujuhira Ltd.	South Carolina, USA	Aluminium Clad Steel manufacturing
1993	Acquisition	Mriami Industries	Ohio, USA	Tube manufacturing
1995	Acquisition	M.E.M Corporation	Rhode Island, USA	Wire manufacturing
1997	Acquisition	Super Tube Canada and Scono Steel Tube	Canada	Tube manufacturing
1998	Acquisition	Scrayton Fine Wires	Telford, England	Wire Manufacturing
2009	Acquisition	Juachuan Electric Cable Co	China	Electrical Cable manufacturing

Product innovation did not suffer as the company in conjunction with Balta Memora Institute, developed a second bimetallic product line, an Aluminium covered steel wire that it branded as **Almastela** in 1959. Once truly diversified, the company changed its name in 1973 to **Copperia Ltd.** The company expanded into the primary and secondary metallurgical products market,

offering a diversified product range that included steel pipe and tube; bimetallic wire, strand and strip; steel bars and plates; solder and skiving, and employed thousands at multiple facilities in the USA, Canada, Japan and Britain. The bimetallic process moved beyond simple copper and steel, and eventually also combined metals and alloys such as Aluminium, tin, brass, gold, nickel and silver.

In 1974, the company's third foray into bimetals was realized when the company opened a Copper Clad Aluminium (CCA) wire manufacturing plant in Tennessee. That division, **Copperia Southern**, eventually was to become the focus of the company's bimetallic wire operation in future.

In 1975, Metale S.A., a French holding company owned by the Rothchild family, acquired controlling interest of Copperia. Metale's acquisition of Copperia represented the first hostile takeover of an American company by a foreign entity however the former vowed not to interfere with the theretofore successful company's direction.

The severe steel crisis of the late 1970s and early 1980s hit Copperia hard. The venerable Glassport facility was closed entirely in 1983. In 1986, another fine wire division was shut down. Both operations were relocated to Copperia Southern largely due to cheaper labour costs in the South. In a bold move to shed the company of its crippled steel manufacturing operations and concentrate on fabricated steel products, Metale spun off Copperia's Ohio operation into a separate publicly traded company in 1986. However, the gamble paid off. Copperia returned to profitability just one year after the spin-off. The late 1980s saw a much healthier original Copperia Corporation divest of its operations in Brazil and sell its tubing operation in Maryland. Expansion was again on the horizon, with the 1988 announcement of a \$90 million upgrade and the construction of another tube plant in Alabama. In 1998, the company announced the building of a stainless steel tube plant in Kentucky. The bimetallic wire division also prospered, with a drastic increase in demand of bimetallic wires for the cellular telephony boom.

In 1999, Ohio-based TLV Steel acquired Copperia Corporation from MSA for \$650 million, and the subsidiary became known as **TLV Copperia**. At that time, the company was the largest producer of structural steel tubing in North America with 23 plants and employing 3,500 people. But TLV was drowning in debt, and at the end of 2000, it, along with 48 subsidiaries, including Copperia, filed for bankruptcy in US. Various subsidiaries were sold off but because the TLV Copperia division maintained profitable operations throughout TLV's bankruptcy proceeding, it was able to secure separate financing. In late 2003, TLV Copperia emerged from bankruptcy.

Frodasco (a division of reputed steel and mining company) acquired most of the TLV Copperia's assets, including 50% of the bimetallic wire division, which would in turn was sold to a private investor in 2006 and operated as **Copperia Bimetallics**. It was the only division of the previous conglomerate to continue to operate under the Copperia name, and kept the established brand as a registered trademark for its copper-clad steel conductors.

About that same time in China, a small Copper-clad Aluminium facility started up to respond to the overwhelming need for wire products in China's explosive infrastructure boom in telecommunications and public utilities. That company, Xishi International, began operations in 2001 under the leadership of Fun Li, and experienced phenomenal growth. As a small company now, Copperia had struggled for a number of years under the pall of its previous bankruptcy. In August 2007, however, the owner sold the company for \$22.5 million USD to **Xishi International**. Xishi International's need for additional manufacturing capacity led it to acquire Copperia in 2007, forming the world's largest bimetallic wire producer.

The acquisition was significant because it represented the first major investment in the state of Tennessee for a mainland Chinese company. Xishi International had quickly grown to be the preeminent supplier of CCA wire in China, but was virtually unknown outside the P.R. China. For some time, the company had been seeking to broaden its market footprint globally. By acquiring Copperia, it not only opened up a worldwide distribution channel, it also gained product diversification by the presence of CCS wire in its new subsidiary's line-up.

Three months later, Xishi International was listed on the Nasdaq, and changed its name to **Xishi Copperia**, capitalizing on the established brand name in the West. After turbulent times in the early years of 21st century, the company has been trying to improve its financial health and has been successful at that (see Appendix 1).

The company, at present, has its head office in Beijing since 2010, and five manufacturing facilities namely two in Tennessee, one in UK and the remaining in China. The manufacturing facilities employ close to 1000 employees not including those employed at Beijing Sales Office. It manufactures 27,000,000 kilograms (kgs) of Copper Clad Aluminium (CCA) per year and 26,226,000 kgs. of Copper Clad Steel (CCS) per year. The company currently has two Chief Executive Officers -one American and the other Chinese. Apart from this, the executive team comprises of a President and an Executive Vice President who is also the Chief Financial Officer of the company.

The company is actively involved in selling its products in the Americas and the other European Nations. However as far as the Emerging economies of the Africa and Asia are concerned, the company is striving hard to make its presence felt. The company is riding high on its metal cladding process and the fact that both the American and the Chinese divisions have been leaders in innovation, with many patented processes to their credit.

The Products of Copperia

Copperia's major products are bimetallic conductors, including bimetallic wire, cable and bus bars. The products generally consist of two metals – copper and either aluminium or steel (see Exhibit 1(a)).

The uniqueness of the products lies in the process of their manufacturing i.e. Cladding. The metal which is to be the core of the Copper clad aluminium (CCA) wires i.e. Aluminium (in case of Copper clad Steel it is steel) and the cladding material - copper are first drawn into wires as per required thickness. They are cleaned by metallurgical processes as any impurity leads to

loss in conductivity. The two are then bonded together by means of applying pressure; welding and then again applying pressure to finally draw CCA wire (see Exhibit 1(b)). The core of the cable is made of the lower conductivity metals (aluminium/steel). The outer cladding is that of copper. The principle behind the bimetallic wire is that in many conductivity applications, the core does not conduct electricity due to a phenomenon known as the 'skin effect.' So it does not make sense to use an expensive metal like copper (known for its high conductivity) in the core. Instead the copper is used only in the cladding where the conduction will take place. This offer large advantages in cost as aluminium and steel are much cheaper than copper

Here, it is important to note that cladding as a process is technically superior to other means of producing bimetallic conductors. Electroplating is another popular technique of manufacturing similar conducting materials but the two differ. In cladding, two or more metals are joined or bonded together in strip form under high pressure without adhesives or filler materials. Once the metals are bonded, they are rolled as one strip, annealed, then often rolled and annealed again. On the other hand, Electroplating is a chemical process unlike cladding which is mechanical in nature. Though the cross section produced as a result of plating, is uniform, still the process overall is highly toxic as it involves alkalis.

However, the electroplating does result in a uniform cross-section of the bimetallic conductor so produced. Many products available in the market are manufactured using only Coating and not plating. While plating involves carefully controlled chemical reaction taking place between the two metals, coating just involves dipping one metal into the other (which is in the molten state). As a result the overall physical and chemical characteristics of the final product are distorted and become unreliable and unpredictable.

The applications of Copper clad products are immense. It can be used in winding wire used to make the coils of transformers and motors. It can also be used to make busbars for switchgears and other wiring applications. In addition, it is rapidly being adopted for transmission of cable television signals (which are typically transmitted at high frequencies that maximize the skin effect).

The soaring prices of copper in recent years have meant that aluminium is being looked at as a replacement for copper for the above applications. However, CCA is superior in performance to aluminium, while being around 10% cheaper than copper. While for the same cross-section of wire, the conductivity of CCA is around two-thirds of that of pure copper, the conductivity can be matched for applications that require such conductivity matching by increasing the wire cross-section. The lower density of CCA compared to copper also means that the length of CCA wire drawn from 1 kg of CCA is 2.7 times the length of the copper wire drawn from 1 kg of copper.

Copper Clad Steel (CCS) is a product with slightly different applications. It is used where conductivity matching to copper is not as important as the strength of the cable. The conductivity of CCS is typically around 40% of that of pure copper. It is used in applications like catenary wire (Overhead Lines) for the Railways. In India, a big problem is theft of the valuable copper wire currently being used for this purpose. Using much cheaper CCS will be a good alternative as people are unlikely to risk their lives to cut and steal this wire. CCS wire can also be used for last mile power distribution.

There are also many bimetallic products in the market which are manufactured by electroplating and coating. Cladding is superior to all of them as the bond between the two metals is the best in a cladding process. The other processes used can lead to air-holes and other defects, leading to quality problems in the finished product. However, the cladding process is expensive, making Copperia's products less competitive in the market than those manufactured by coating and plating.

The Emerging Scenario

The company has been able to achieve success in the western markets but it has not been able to find a place for itself in the emerging markets especially India. In India, the market for copper strips and wire has two arms: - Original Equipment Manufacturer (OEM) segment and the retail market. India relies much more on its imports for fulfilling requirements of copper products

required for making Wires and strips. Principally, the products for which the copper strips and wires may be used are Winding Wires, Bus Bars, Cables and other conductors.

OEM segment

The OEM segment is one with immense potential for Copperia. The power infrastructure in India is expanding very rapidly and this has led to huge growth in the Wire and Cable industry in the last few years. The total usage of copper by the electrical and communication industries is projected to grow to 553000 tons/annum by 2015-2016. Nearly 25% of this is used by the Wire and Cable industry. Winding wires used for the core of motors and transformers is a large part of this industry.

OEM – Supply Chain

Various actors are involved in the supply chain for the OEM segment in context of the cable and conductors industry in India (see Appendix 2). The company would like to focus on the two steps in the middle of the supply chain (see Appendix 2) viz. the wire and cable manufacturers, and the equipment manufacturers. However, the awareness of this product varies at these two levels. While 80% of wire manufacturers have heard of at least one among CCA and CCS, as many as 65% of the equipment manufacturers have not heard of either of the two products (see Appendix 3).

OEM – Acceptance Issues with new product

The acceptance of these products poses a big challenge for the company. The OEMs are worried about quality and performance issues and the size that would be required to match conductivity with pure copper (an important factor for applications like transformers and motors). The wire manufacturers share the quality and size concerns and are also worried about product life. However, the overriding concern of both categories is whether their customers will accept the product. With the exception of the largest companies, no other company would be willing to take a risk on the product unless their customers asked for it in

the first place. Therefore, to get players in the OEM segment to adopt the product, Copperia must first get the end customers to be interested in the product and convinced about its advantages.

OEM – Business Opportunities

The challenges in the OEM segment are numerous, but the opportunities are also enormous. Firstly, the rising copper prices have squeezed many companies' margins to as low as 5–7%. More and more companies are turning to aluminium as a possible substitute. For instance, 85% of all the bus bars in India are made of aluminium. Here is an opportunity for the company to demonstrate how CCA is superior to aluminium. Customer education at all levels will be crucial for the company in this segment. Educating the customer on the difference between plated and clad materials is also the key to alleviating any fears about quality and performance. In addition, the adoption of the technology by big players in the OEM value chain is expected to create a virtuous cycle and help faster penetration of the technology in the retail segment.

The Retail segment

Talking about the Retail Segment, the bimetals, which form the major part of the company's products, account for only 35% of total Copper and allied products being used by this segment. The total market size is approximately 40-50 containers per month (cpm) where each container contains 19 metric tons of the material by weight.

Retail segment – Presence of various players and Supply chain

The total Import of Copper clad products (Copper clad Aluminium Magnesium (CCAM- an alloy of magnesium and aluminium clad with Copper) wire and CCA) is pegged at 9-11 cpm. Of this, the domestic players supply about 6-7 cpm. The two main retail centres are Delhi and Mumbai where Mumbai market is negligible as compared to Delhi. The Delhi market consists of 4-5 established importers, 50 traders and around 1000 Small Scale Enterprises (SSE) where each

has a small production capacity. The supply chain for bimetallic products, in context of the Retail Market is shown in Appendix 4.

These SSEs turn out to be the consumers of the CCA wire as they use it to manufacture cables. Out of the total market, the clad materials (CCA) that have been manufactured by making use of the process similar to the one used by Copperia form only a small portion i.e. 5% of the market. The bigger chunk i.e. 30% of the market size is grabbed by the cheap substitutes of CCA which are actually CCAM alloys. The material is chiefly imported from China (see Appendix 5).

Retail segment – Acceptance Issues with new product

The major factor behind prevalence of so many CCA like alloys and materials is that the players in the retail market are not aware about the difference between cladding, plating and polishing as a means of producing bimetallic materials. Therefore Copperia has not been able to position itself as a company offering a better product as it uses cladding- a superior means of ensuring that the bond between the metals is mechanically and chemically homogenous. Therefore, the players in the market are making use of Copper coated alloys and passing it to consumers as a substitute of Copper and Copper clad materials. The chief reason behind this is the price advantage since these coated materials have very less content of copper by volume and more of a cheaper alloy of Aluminium.

The prices of the copper wire per kg based on Super D rod variety (99.9% purity grade) vary as per the prices of the scrap Copper in London Metal Exchange. As on Feb 10, 2012, the prices of the Copper and the various Products available in the market are shown in exhibit 2. The exhibit clearly shows the price advantage that these unorganized players are having by flooding the market with the coated materials and passing it off as a clad variety.

The perception of the clad materials, amongst the players in the market, is not very encouraging. Market players (Wholesalers, Retailers, and Consumers) feel that these products (Clad materials) are best suited for applications that run on low power requirements. Since they

dissipate a lot of heat, they are less durable in the long run. They lack strength, people say, and are also not approved as per Indian standards. A majority however believes that this whole concept of the clad materials is fraudulent in the sense that if copper is not present in a conductor, it is impossible for the conductor to conduct. They go on to add that this is merely a compromise on quality by some companies who tend to spoil the market by bringing in these lower quality, cheap products.

Retail Segment – Business Opportunities

The players in the retail market, however, add that these materials will find their way into the market only when the big players like OEMs are convinced of the quality and start using it. Instrumentation cables can be other such avenue where these materials may find some taking. House wiring, bus bars and wires for installation of CCTVs may offer some other opportunities for such products to be used.

When the various players in the retail market were asked, in absolute terms, about the factors they considered while purchasing the product, the responses were quite in tune with the price sensitive tag of the Indian market (see Appendix 6 a). The word of mouth becomes the most preferred mode of obtaining information in emerging markets such as India (see Appendix 6 b).

Competition Profile

If the outlook with respect to Copperia's product was not dampening enough, a look at competition's efforts may help one understand the difficulty for Copperia to enter the Indian market. There is one company known as Cupera Innoxia Ltd. (CIL) which is in direct competition with Copperia's products. CIL was registered in 1995 and has a turnover of \$200 million annually. It together produces 200 metric tons of CCA and alloy products in a month. It has an established brand which goes by the name "Wiver". As of now it occupies a market share of 40-50%. The unique thing about the way it operates in the market is that it makes available the quantities depending upon export opportunities. If for an instance, in one particular month, CIL

supplies 150 tons in the market then in another month, depending upon the demand in the export market, it may as well slash the supplies to as low as 50 tons.

Since the demand in the market has to be met, smaller unorganized players chip in and then the inflow of cheaper goods with inferior quality results. Though the brand does enjoy the awareness levels amongst the market players but it is associated with low quality. The clad materials that it claims to provide, according to the market, are not actually clad but are manufactured in a way that allows the company to charge higher profits on the name of the products being clad. Also the players in the market feel that the copper content in the products, so offered, is not what is promised.

Moving Forward

Copperia is trying to enter the Indian market for several years now, but the factors mentioned above in the form of market awareness levels; competition and price sensitivity of the market have prevented it from making inroads. It is time, Copperia actively thinks upon the entry strategies so as to gain a foothold in emerging economies like India. One such strategy may be Cooptation with Local players where Copperia uses the network expertise of these local players. Since these players have their connections with producers in China, they can be manipulated to support Copperia's products. Some of these local players command a premium on the prices of brand Wiver just because their quality has been consistently average if not good and their supplies from China have been regular. They are able to bridge the demand and supply gap which is a result of CIL opting for export opportunities and neglecting the needs of the local market. These players also offer technical expertise to small wire drawing enterprises and allow for both credit and cash based transactions. Other route may comprise of reaching out to OEMs so that once the bigger players realize the potential of the product, the retail market will ultimately fall in place. Though the tag of a Multi National Company may help Copperia in attracting some players, but eventually for sustenance, the company needs to chalk out an entry strategy keeping in mind the growing needs of the Indian Cables and conductors Industry and the expectations of the players involved.

Exhibit 1(a): Products of Copperia



Copper Clad Steel

Copper Clad Aluminium

Exhibit 1(b) : Diagrammatic Representation of the Cladding Process

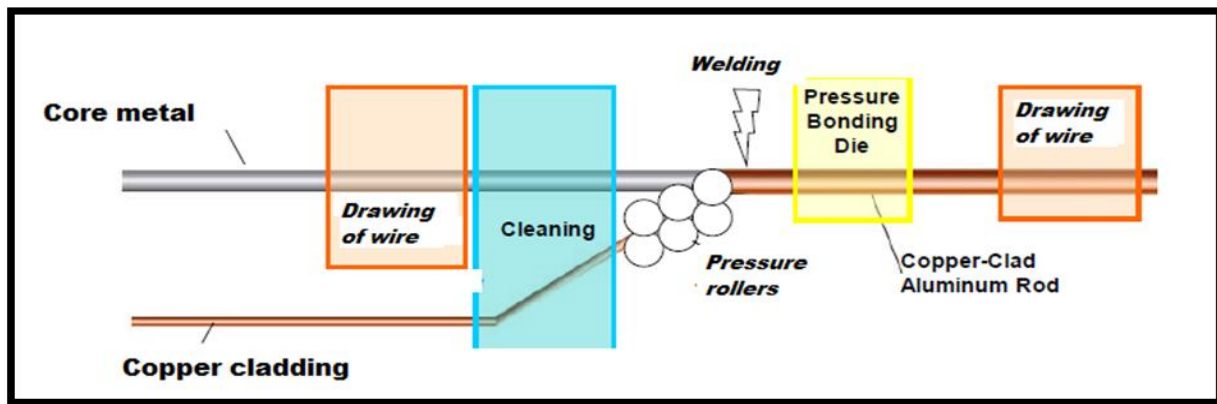


Exhibit 2: The prices prevalent in the retail market in Indian National Rupees per kilogram

(INR/Kg) (as on Feb 10th, 2012)

The Cost aspect (INR/Kg)	
Copper Scrap (LME)	= 424
Super D rod	= 481
CCoAM (alloy)	= 330
CCoA	= 320
Chief Competitor's Price	= 275
cash	= 276
credit	= 280
C Clad A(Copperia)	= 460

(CCoA- Copper Coated Aluminium, CCoAM – Copper Coated Aluminium Magnesium)

Appendix 1

Copperia-A look at the financial performance¹

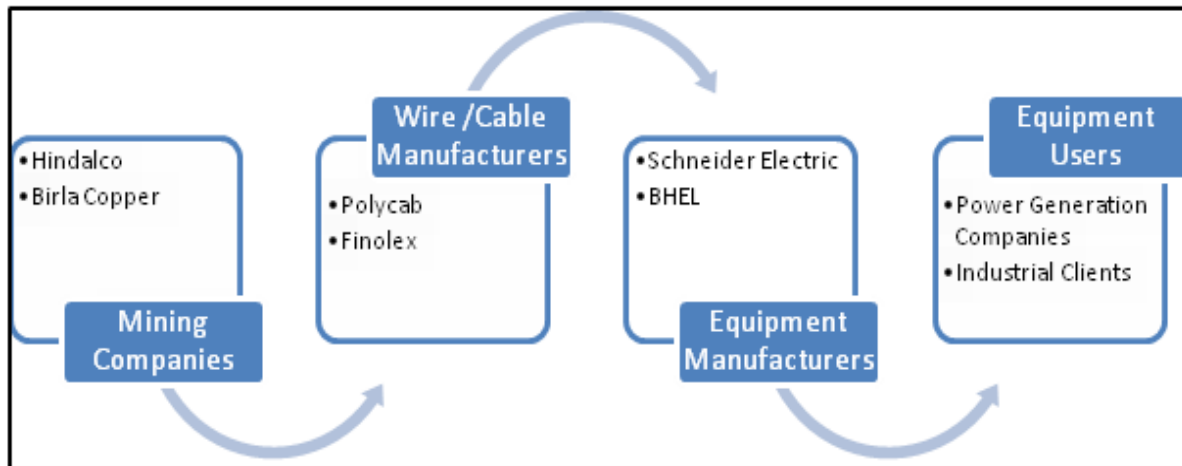
Indicators/ Year ²	2007	2008	2009	2010	2011
Revenue	128.2	221.4	182.9	265.0	287.4
Operating Income	30.6	37.1	36.8	58.0	49.0
Net Income	29.5	31.2	21.9	31.8	32.0
Total Assets	246.4	294.4	294.7	370.2	426.8
Shareholder's Equity	144.2	203.0	236.9	344.4	396.2
EPS ³ - basic	1.33	1.14	0.78	0.86	0.84

1 (US \$ in millions, except per share amounts)

2 (Source: Company annual reports from 2007 to 2011, fiscal year ends in December)

3 Earnings Per share

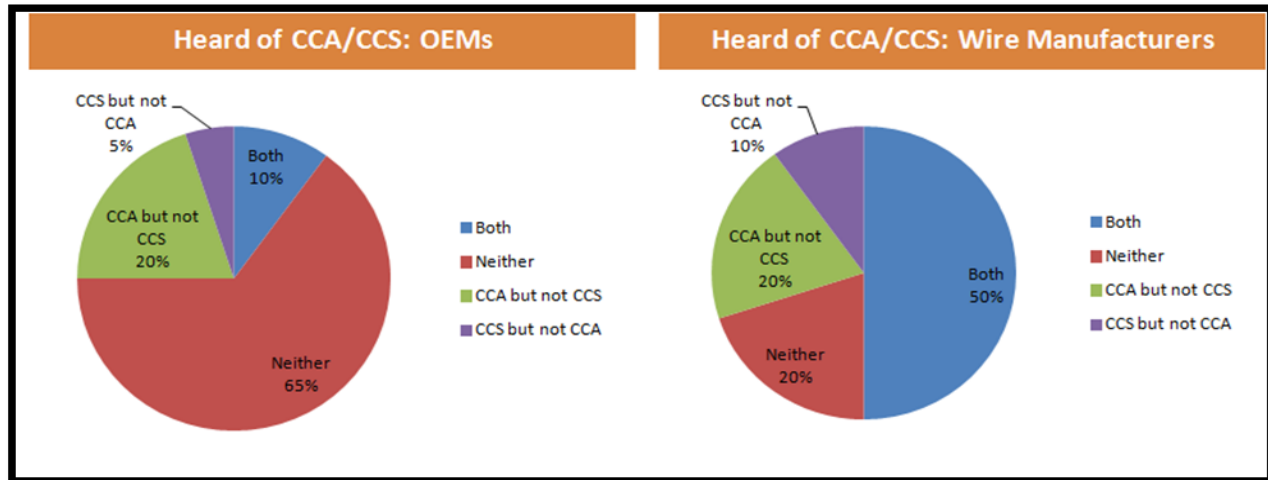
Appendix 2

OEM-The supply chain¹

1 The name of the companies, mentioned in the figure, are real and are the leading companies in a particular part of the supply chain. The power generation companies are state owned in India.

Appendix 3

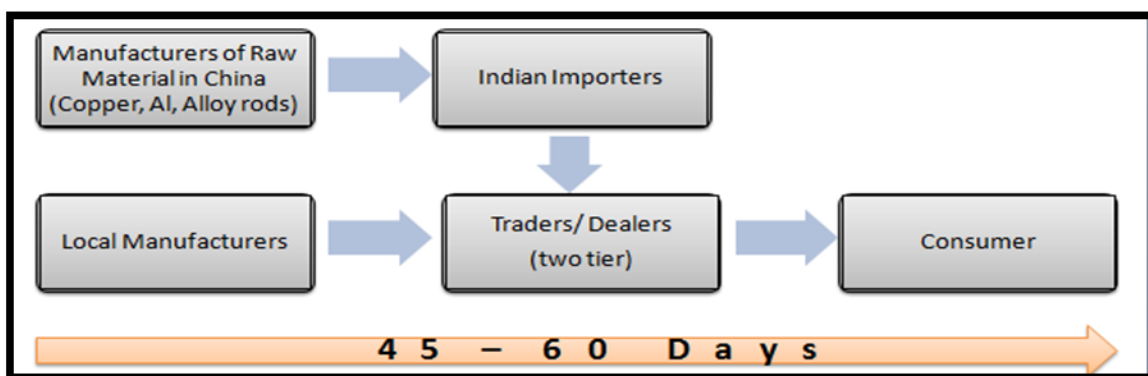
Awareness Levels of OEMs and Wire manufacturers¹



1 The graph represents the data collected through in-depth interviews conducted with the officials of various OEMs during the course of study.

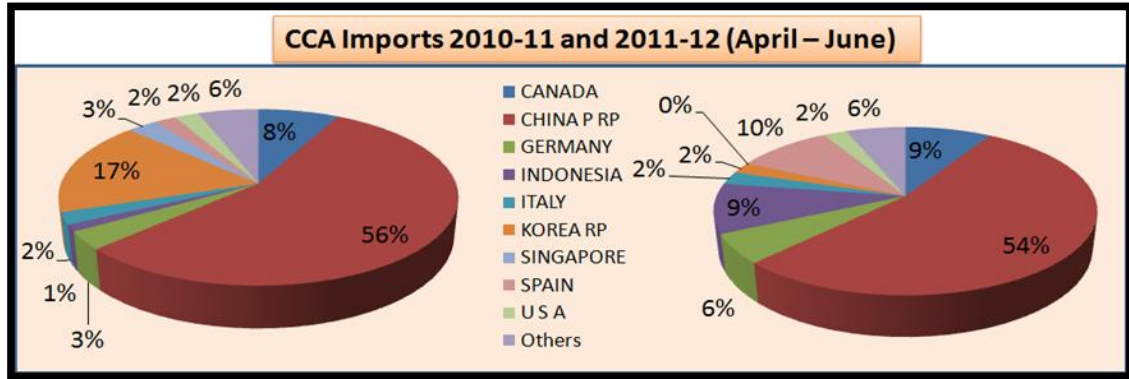
Appendix 4

The Supply Chain of Copper and other related products in Indian Retail market



Appendix 5

CCA Imports from various countries, 2010-11 and 2011-12 (April-June)¹



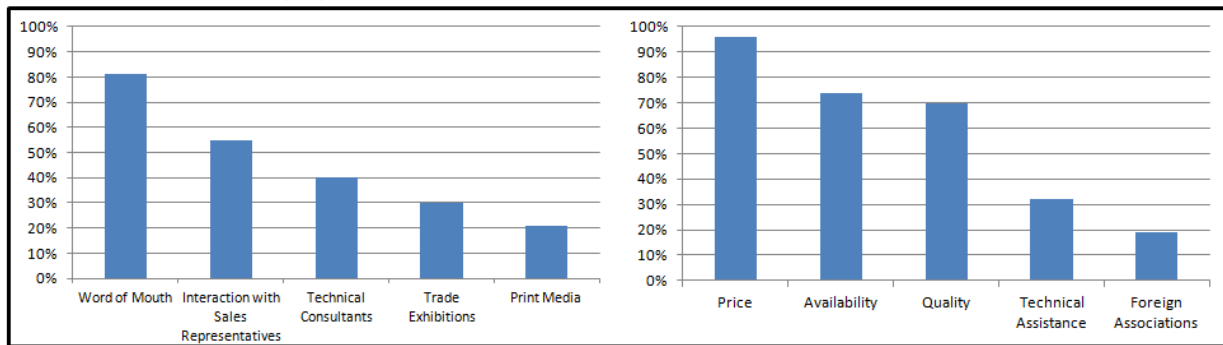
1 Source: Export - Import data bank, Ministry of commerce, India, 2010-2011 and 2011-12 (Apr- Jun)

Appendix 6

Opinion of the Retail market players

a) Most effective sources of information amongst B2B players

b) Factors influencing Organizational Decision Making



The graph represents the data collected through in-depth interviews conducted with the various players in the retail market during the course of study. The percentages in the bar graph indicate the total number of repondents who felt that particular option was most applicable. Since the respondents named more than one of the choices while expressing their opinions during the course of interview, the numbers do not add up.