

China Rare Earth Holdings Limited

Closing Price: HK\$1.00

Stock Code: 0769 BUY

Being one of the leading players in the rare earth industry in China, China Rare Earth Holdings Limited (CREH) is well positioned to benefit from growing demand for rare earth products worldwide. The recent expansion of rare earth production facilities has taken CREH one step further to become the largest manufacturer of rare earth products in the world. Its product quality, process efficiency and pricing capabilities will be significantly enhanced after the expansion. In addition to capacity expansion, CREH also plans to proceed with both forward and backward integration. Regarding CREH's refractory materials business, the management currently contemplates to penetrate into the Australian and Taiwanese markets, and increase its sales to Japan. The geographical diversification will enlarge CREH's customer base and revenue source and pave the way for further revenue and profit growth in coming years. We project CREH to earn HK\$115 million for the current financial year ended 31st December 2000 and HK\$173 million for the next financial year ended 31st December 2001. Trading at a prospective PER of 3.5X for financial year 2001, the current valuation is extremely attractive, after taking into account the estimated EPS CAGR of 39.1% and prospective ROE of 30.9%. We anticipate CREH to be re-rated when it releases strong earnings figures in five months time. Our 12-month target price is HK\$2.30. BUY.





Year To 31 Dec	Sales (HK\$M)	Gr. Profit (HK\$M)	Op. Profit (HK\$M)	Net Profit (HK\$M)	EPS (HK Cents)	PER (X)	P/B (X)
1998A	419	118	94	62	13.8	7.3	3.8
1999A 2000F	448 599	161 213	121 156	81 115	16.8 19.1	5.9 5.2	1.5 1.5
2001F	877	318	244	173	28.7	3.5	1.1
2002F	1,080	401	309	223	37.0	2.7	0.8



What Is Rare Earth?

Rare earth is a general term for a group of 17 chemical elements on the periodic table. While each of these elements has certain unique chemical and physical properties, they do have the following characteristics in common: high density, high melting points, high electrical and thermal conductivity.

Major Rare Earth		
Element	Symbol	Applications
Lanthanum	La	Aluminium Alloys For Aeroplanes And Glass Decolourising
		Agent (For Reinforcement)
		Road Signs And Reflection Pellets On The Road Surface Of
		Highways
		Optical Glass
		Ni-MH Batteries For Portable Phones
		Pigments And Glass Agents For Ceramics Control File
		Optical Fibres Ulab Carda Carda itana
O - mission	0-	High Grade Capacitors Flooring and Populars
Cerium	Ce	Fluorescent Powders
		Ni-MH Batteries
		Optical Glass And Radiation Resistant Glass
		Special Additives For Glass For Reinforcement
		Catalyst For Petroleum Cracking
		Electronics Components For Computers, Ovens, Micro
		Ovens And Air Conditioners
		Exhaust Purifiers Of Cars
Praseodymium	Pr	High Grade Ceramic Pigments
		Alloys For The Movements Of Watches
		Permanent Magnets
Neodymium	Nd	Permanent Magnetic Materials And Automatic Door Locks
		And Windows Of Cars
		Superconductors For The Electronic Industry
		Ni-MH Batteries For Portable Phones
	_	Hard Disk Drives For Computers
Samarium	Sm	High Grade Permanent Magnetic Materials For Defence Industry
		Control Materials For Nuclear Energy Industry
	<u>_</u>	Sm-Co Alloy For Batteries
Europium	Eu	Fluorescent Screens For Colour TV Sets
		Computer Display Units And Trichromatic Fluorescent Lamps
		Control Rods For The Nuclear Energy Industry
Gadolinium	Gd	Laser Equipment
		GGG Crystals
		Magnetic Refrigeration Materials
Terbium	Tb	Fluorescent Activators
		Memory Chips
_		High Grade Magnetic Materials
Dysprosium	Dy	Neutron Energy Spectrum Detectors For The Nuclear Energy
		Industry
		Materials For Metallic Halogen Lamps
		Optic Magnetic Memory Alloys
		Permanent Magnetic Materials
		• Lasers
Holmium	Но	Thermal Nuclear Reaction Activators
		 Surgical Use Lasers For Removal Of Blood Clots



Erbium	Er	IlluminantsSuperconductorsOptical FibresInfra Red Glass
Thulium	Tm	X RaysLasersSuperconductors
Ytterbium	Yb	SuperalloysHeat Insulation Coatings
Lutecium	Lu	Probes Of PET Medical EquipmentElectronic Colour Displays
Yttrium	Y	Illuminants (LCD, Fluorescent Powders)GemsMetal Alloys

Source: Company Prospectus

Rare Earth Can
Be Applied In
Traditional And
High Technology
Industries

As shown in the previous table, products refined from rare earth elements can be applied in traditional as well as high-technology industries. While traditional industries such as metallurgy, automotive, petroleum, glass and ceramics have increasingly applied rare earth products in their production processes, high-technology industries such as electronics, medical, fibre-optics, office automation and information technology are also placing increasing reliance on the use of rare earth products. Furthermore, rare earth products can also be used as catalysts in various industrial applications in achieving greater energy efficiency, higher performance and greater environmental protection.

Global Demand For Rare Earth Has Been Increasing Global demand for rare earth has been increasing since the beginning of 1990s. According to information released by China Rare Earth Information Center, the annual global consumption of rare earth has soared up from 33,000 tons REO in 1990 to 75,000 tons REO in 1999, representing a CAGR of 9.6%. China's consumption of rare earth has also increased steadily from 14,530 tons REO in 1996 to 16,000 tons REO in 1999, representing a CAGR of 3.3%; while export has increased from 30,808 tons REO in 1996 to 50,000 tons REO in 1999, representing a CAGR of 17.5%.

Global Demand For Rare Earth Is Expected To Grow By 10% In 2000 And 12.5% In The Next Three Years According to information from www.cre.net, China's consumption of rare earth is expected to grow to 35,000 tons by 2005, representing a CAGR of 13.9% from 1999 to 2005. Both traditional and high-technology industries are expected to account for the increase in China's consumption of rare earth. For instance, demand for rare earth from metallurgy industry is expected to increase to 9,200 tons by 2005 from the present 5,000 tons, while demand for rare earth from petroleum industry is expected to increase to 6,000 tons by 2005 from the present 3,800 tons. Global demand for rare earth, however, is also expected to increase at increasing rates in the years ahead, as Bluetooth and other technological innovations are likely to create huge demands (both new and replacement) for IT and communication products, which in turn will drive up demand for rare earth. We estimate global demand for rare earth to increase at 10% in 2000 and 12.5% in the next three years, while the Commerce Department of Japan also arrives at similar estimates.



Domestic Sales And Export Of China's Rare Earth Products From 1996 To 1999									
1996 1997 1998 1999									
	(Tons)	(Tons)	(Tons)	(Tons)					
Export	30,808	31,430	44,700	50,000					
Consumption	14,530	15,070	15,300	16,000					
Total Output	45,338	46,500	60,000	66,000					

Source: Company Prospectus, China Rare Earth Information Center

Estimated Global And China Consumption Of Rare Earth Products From 2000 To 2003										
	2000	2001	2002	2003						
	(Tons)	(Tons)	(Tons)	(Tons)						
China	18,240	20,793	23,705	27,023						
Global	82,500	92,813	104,414	117,466						

Source: CSC Securities (HK)

China Dominates Supply Of Rare Earth

Possessing about 80% of the world's total rare earth reserves, China is virtually the sole supplier of rare earth in the world. In 1999, China provided 88% of the world's total rare earth consumption. We expect China's dominance in the supply of rare earth to continue in the coming future, as Chinese rare earth products are much cheaper and are available in large quantities. Furthermore, unlike India and Australia, which possess reserves that contain radioactive elements such as uranium and thorium, reserves in China are more environmentally friendly. Looking forward, we anticipate China to continue to be the leading supplier of rare earth, and supply more than 90% of the world's rare earth consumption.

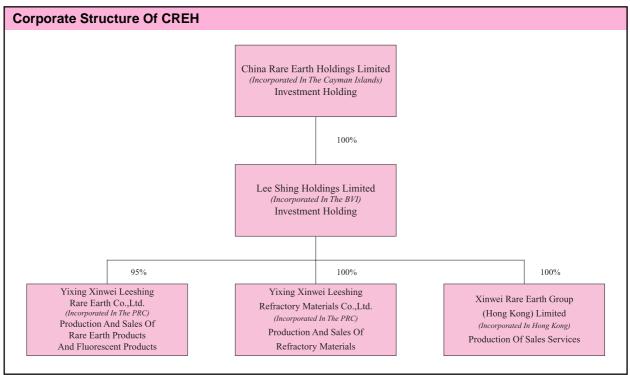
What Are Refractory Materials?

Refractory materials are inorganic non-metallic materials that can withstand high temperatures of above 1,580°C. They have high degree of heat resistance, very good volumetric stability and high degree of wear resistance. Some refractory materials also have properties such as gas permeability, thermal conductivity, electric conductivity and hardness. With the aforementioned properties, refractory materials are widely used in light and heavy industries such as steel, metallurgy, non-ferrous, petrochemical, and construction. Refractory materials can be segregated into four different types according to their heat resistance ability:

Types Of Refractory Materials	Heat Resistance Level
	(°C)
Ordinary	1,580 To 1,770
Medium Grade	1,770 To 2,000
High Grade	2,000 To 3,000
Super Grade	3,000 And Above

Source: Company Prospectus





Source: CREH

One Of The Leading Rare Earth Processors In China Competition in the international rare earth market is not fierce. As mentioned before, China is the leading supplier of rare earth, more than 90% of the world's rare earth consumption comes from China. Competition of CREH mainly comes from domestic players (including global players' operations in China). At present, there are more than 130 domestic producers in China. However, we understand that less than 10 producers (including CREH) are operating at economies of scale.

Has Lifted Its Production Capacity To 4,950 Tons Per Annum CREH has recently upgraded its existing production facility and completed the installation of new rare earth extraction lines. Annual production capacity has been lifted from 3,550 tons to approximately 4,950 tons per annum. More than 85% of its products are classified as highly pure i.e. 99.99% or above. Upon completion of the expansion project, CREH's product quality, process efficiency and pricing capabilities will be further enhanced.

To Become The Largest Rare Earth Processor In The World CREH is on its way to further increase its annual production capacity to 6,500 tons and become the largest player in the industry. We anticipate the project to complete by 2001. Its gross margin should have ample room to improve further.



Plans To Proceed With Both Forward And Backward Integration

In addition to capacity expansion, CREH also plans to proceed with both forward and backward integration. To secure stable materials supply, CREH plans to invest in raw materials suppliers or make prepayments to suppliers in return for quaranteed delivery of agreed quantities of raw materials. In downstream rare earth processing, the management of CREH plans to turn some of its rare earth products to rare earth metal and fluorescent powders. There are plans to gradually expand the existing fluorescent powders and rare earth metal production lines, and ultimately lift the annual production capacity of rare earth metal and fluorescent powders to 1,000 tons (from 200 tons) and 500 tons (from 50 tons) respectively. Fluorescent powders can be used in the production of energy saving lighting products. Owing to growing concern for environmental protection, we anticipate fluorescent powders to have an enormous market potential, and command higher margins. Rare earth metal like Neodymium is also expected to be popular, as it is used as the metal matrix in magnetic materials, which is widely used in different electronic motors. Assume the plans can be implemented smoothly, turnover derived from the rare earth division is also expected to jump from HK\$405 million for 2000 to HK\$602 million for 2001 and HK\$723 million for 2002.

Superiority Over Baotou Steel Rare Earth High-Technology

According to CREH's management, the major competitor of CREH is Shanghai-listed Baotou Steel Rare Earth High-Technology (600111.SS). Baotou Steel Rare Earth High-Technology is currently the largest player in the market in terms of production capacity. It is capable of producing 5,500 tons of rare earth products per annum, however, only 20% of its products are classified as highly pure i.e. 99.99% or above. We believe CREH will emerge as the ultimate winner in the market. Firstly, as mentioned before, CREH will further increase its annual production capacity and enjoy better economies of scale. Secondly, CREH offers a wider range of products with better quality. Thirdly, since CREH's cost structure is leaner, it enjoys better gross and operating margins, which in turn allow CREH to price its products flexibly. Finally, CREH is in a better position to tap into various funding sources.

Comparison Of CREH And	Baotou Steel Rare Earth Hig	h-Technology
	CREH	Baotou Steel Rare Earth High-Technology
1998 Turnover	HK\$419.5 Million	Rmb227.8 Million
1999 Turnover	HK\$447.8 Million	Rmb245.7 Million
1998 Total Assets	HK\$271.8 Million	Rmb702.9 Million
1999 Total Assets	HK\$456.5 Million	Rmb773.4 Million
1998 Total Equity	HK\$118.7 Million	Rmb600.6 Million
1999 Total Equity	HK\$312.7 Million	Rmb664.0 Million
1998 ROA	22.8%	12.5%
1999 ROA	17.8%	6.3%
1998 ROE	52.2%	14.6%
1999 ROE	26.0%	7.3%
Total Number Of Staff	750	2,003

Source: CREH, Baotou Steel Rare Earth High-Technology Company Reports



Also Supplies Medium And High Grade Refractory Materials

Besides manufacturing and selling rare earth products, CREH is also engaged in the manufacture and sale of high grade refractory materials. At present, there are more than 3,000 manufacturers of refractory materials in China, with a total production capacity of approximately 10 million tons. However, there are only a few manufacturers that are capable of producing high grade refractory materials in China. Furthermore, CREH is the only manufacturer in China that can produce RH steel furnace bricks, which are badly needed by many domestic and Asian steel manufacturers.

Growing Domestic Demand For High Grade Refractory Materials

We are of the opinion that China's domestic demand for high grade refractory materials will continue to increase, as many steel and petrochemical companies strive to improve production efficiency and quality of their products. Manufacturers that are able to produce high grade refractory materials are therefore expected to gradually take away market share from other SOE peers. In anticipating the increase in demand for high grade refractory materials, CREH has recently increased its annual production capacity from 30,000 tons to 50,000 tons. In particular, CREH has raised its production capacity of RH steel furnace bricks to approximately 15,000 tons per annum.

Geographical Diversification To Enhance Earnings Quality

CREH has undertaken to supply a major portion of its production of RH steel furnace bricks to Japan's New Nippon Steel. We anticipate CREH's exports to Japan to jump from 1,800 tons in 1999 to 3,600 tons in 2000 and 8,000 tons in 2001 respectively. In addition to Japan, the management of CREH has confirmed us that CREH will also export to Australia and Taiwan in 2001. The geographical diversification will enlarge CREH's customer base and revenue source and pave the way for further revenue and profit growth in coming years.

Secured Orders On Hand

The management of CREH has further confirmed us that both domestic sales and exports are robust and the order book has been full since the beginning of the year. We project sales volume to increase from 24,000 tons in 1999 to 30,000 tons in 2000. Turnover of refractory materials is expected to increase by 59.7% from HK\$144 million in 1999 to HK\$194 million in 2000. Thereafter, turnover from this division is expected to increase further to HK\$275 million in 2001 and HK\$358 million in 2002.

Premier Customers Of CREH's Refractor	ry Materials Division						
New Nippon Steel	Wuhan Steel Corporation						
Shanghai Baoshan Steel Corporation	Shoudu Steel Corporation						
Taiyuan Steel Corporation	Panzhihua Steel Corporation						

Source: CREH



Quality Management Team

We appraise the foresight of CREH's management. CREH is heading for the right direction by securing steady supply of raw materials for rare earth production, and at the same time, increasing its production of high value-added fluorescent powders and rare earth metal. We do also appraise CREH's geographical diversification strategy, which we believe will lead to improvement of earnings quality.

Deserves Re-Rating

CREH has been trading within a historical PER range of 3.9X and 7.1X since its listing. However, we believe that a PER re-rating is imminent for CREH, as CREH will further improve its margins through better sourcing and downstream processing, and enhance its earnings quality by diversifying geographically. We are of the opinion that CREH's fair PER range is between 5.0X and 8.0X.

12-Month Target at HK\$2.30

At the current share price of HK\$1.00, CREH is trading at prospective PERs of 5.2X and 3.5X for financial years 2000 and 2001 respectively. We believe the stock is undervalued, after taking into account the estimated EPS CAGR of 39.1% and prospective ROE of 30.9%. Should CREH be able to trade at 8.0X PER, the share price will hit the HK\$2.30 mark. This represents our 12-month target price.

Valuation Of	Leading Listed Players In The Industry		
Company	Business	Historical PER	Forecast PER
AMR (Canada)	Produces, processes and develops rare earth materials and applications which are essential in many high technology products. Sells products to customers in consumer electronic, computer and automotive sectors throughout Europe, North America, Korea and Japan.	14.7X	6.3X
Beijing Zhongke (China)	Develops, manufactures and markets rare earth permanent magnetic materials.	86.2X	N.A.
Baotou Steel Rare Earth High- Technology (China)	Manufactures and markets rare earth ore, refined rare earth ore and related products. Products are sold both in domestic and international markets.	72.6X	N.A.

Source: Bloomberg



Consolidated Profit & Loss Statement								
Year To 31st December	1998A (HK\$M)	1999A (HK\$M)	2000F (HK\$M)	2001F (HK\$M)	2002F (HK\$M)	2003F (HK\$M)		
Sales Of Rare Earth Products	288	304	405	602	723	867		
Sales Of Refractory Materials	131	144	194	275	358	424		
Turnover	419	448	599	877	1,080	1,291		
Cost Of Sales	(302)	(287)	(386)	(559)	(680)	(806)		
Gross Profit	118	161	213	318	401	485		
Other Income	0	1	0	0	0	0		
Distribution Cost	(9)	(10)	(15)	(19)	(24)	(30)		
Administrative Expenses	(15)	(31)	(42)	(55)	(68)	(85)		
Profit From Operation	94	121	156	244	309	370		
Net Finance Cost	(6)	(4)	(2)	5	11	22		
Profit Before Taxation	87	117	155	248	320	392		
Taxation	(23)	(33)	(36)	(69)	(90)	(110)		
Profit After Taxation	65	84	119	179	230	282		
Minority Interest	(3)	(3)	(4)	(6)	(8)	(9)		
Profit Attributable To Shareholders	62	81	115	173	223	273		

Source: CREH, CSC Securities (HK)



Consolidated Balance Sheet						
As At 31st December	1998A (HK\$M)	1999A (HK\$M)	2000F (HK\$M)	2001F (HK\$M)	2002F (HK\$M)	2003F (HK\$M)
Fixed Assets And Construction In Progress	107	133	203	265	298	325
Total Fixed Assets	108	133	203	265	298	325
Cash And Bank Balances	23	124	143	205	318	483
Inventories	51	55	77	112	136	161
Accounts Receivables And Other Receivables	70	100	150	228	292	361
Prepayments, Deposits And Other Current Assets	20	44	55	70	85	100
Due From Related Companies	1	0	0	0	0	0
Total Current Assets	164	323	425	616	831	1,106
Total Assets	272	456	628	881	1,129	1,431
Short Term Bank Loans	(10)	(11)	(14)	(16)	(15)	0
Accruals And Payables	(72)	(68)	(93)	(140)	(177)	(218)
Dividends Payable	(10)	(13)	(12)	(17)	(22)	(27)
Taxation Payable	(15)	(12)	(31)	(56)	(86)	(121)
Due To Director	(0)	0	0	0	0	0
Due To Related Companies	(1)	(2)	0	0	0	0
Total Current Liabilities	(108)	(104)	(149)	(229)	(300)	(366)
Net Current Assets	56	219	276	387	531	740
Long Term Bank Loans	(45)	(39)	(30)	(15)	0	0
Convertible Bonds	0	0	(39)	(78)	(78)	(78)
Total Non-Current Liabilities	(45)	(39)	(69)	(93)	(78)	(78)
Net Assets	119	313	410	559	751	987
Represented by:						
Shareholders' Equity	111	306	404	553	745	981
Minority Interest	8	6	6	6	6	6

Source: CREH, CSC Securities (HK)



Cash Flow Statement						
Year To 31st December	1998A (HK\$M)	1999A (HK\$M)	2000F (HK\$M)	2001F (HK\$M)	2002F (HK\$M)	2003F (HK\$M)
Net Cash Inflow From Operating Activities	86	68	112	183	266	326
Returns On Investments And Servicing Of Finance						
Interest Received	0	1	4	8	14	24
Interest Paid	(6)	(5)	(5)	(4)	(3)	(2)
Dividends Paid	(13)	(17)	(18)	(18)	(26)	(31)
Net Cash Inflow (Outflow) From Returns On Investments And Servicing Of Finance	(19)	(21)	(20)	(13)	(15)	(10)
Taxation PRC Enterprise Income Tax Paid	(21)	(34)	(36)	(69)	(90)	(110)
Investing Activities Payments To Acquire Fixed Assets And Construction In Progress	(18)	(28)	(70)	(62)	(33)	(27)
Net Cash Outflow From Investing Activities	(18)	(28)	(69)	(62)	(33)	(27)
Net Cash (Outflow) Inflow Before Financing	28	(15)	(13)	39	129	180
Financing Proceeds From Issue Of Shares Or Bonds	0	140	39	39	0	0
Issue Expenses	0	(18)	(2)	(2)	0	0
New Bank Loans	0	6	30	0	0	0
Repayment Of Bank Loans	(12)	(11)	(35)	(13)	(16)	(15)
Net Cash Inflow (Outflow) From Financing	(12)	116	32	24	(16)	(15)
Increase In Cash And Cash Equivalents	16	100	19	63	113	165
Cash And Cash Equivalents, Beginning Of Year	7	23	124	143	205	318
Effect Of Foreign Exchange Rate Changes	(0)	1	0	0	0	0
Cash And Cash Equivalents, End Of Year	23	124	143	205	318	483

Source: CREH, CSC Securities (HK)



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