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STEEL COMMITTEE

THE INDIAN STEEL INDUSTRY

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This document by Parijat Consulting (India) is submitted for information and discussion to the participants to the joint India/OECD/IISI Workshop.

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THE INDIAN STEEL INDUSTRY

TABLE OF CONTENTS

CURRENT STRUCTURE

Executive summary

1. This report has been specifically constructed with the explicit intention of providing an insight into the current scenario for the Indian steel industry, its key issues, Constraints, Regulatory outlook, and a brief extrapolation of its growth potential. Consequently, the report covers the following aspects.

Overview

2. An overview of the domestic steel industry with specific emphasis on the demographics of its structure, participants, product mix and geographical dispersions. Our study observed the existence of two distinct groups namely the organized and unorganized sector. The report elaborates on the various aspects such as raw material costs, prices and market capitalization for both sets of producers. We have specifically focused on the performance and key financials of some principal dominant players in the Indian market i.e. Steel Authority of India, Tata Steel, Jindal, and Essar etc.

Industry outlook and dispersion demographics

3. The report examines issues of production and consumption in relation to the diverse types of steel production and the principal drivers of demand. Our observation revealed that the geographical demographics of steel production and the consequent capacity concentration was acutely lop sided viz. Eastern India has a production capacity of 50% but a consumption of only 18% whereas the North has a production capacity of 11% and consumption of 38%.

4. As far as demand is concerned our study reveals a potentially significant imminent jump in demand on account of radically higher outlay on India's infrastructure development. Consequently from a medium term investment prospective India appears close to a demand inflexion point that promises to convert it into a sizable player on the world stage both as a producer and a consumer.

5. Domestic Infrastructure upgradation, construction, urbanization, the automobile industry and steel plant building are likely to be some of the key growth areas for the sector. We project a CAGR of over 7.8% in demand in the next three years.

Trends in domestic pricing

6. The study examines the dynamics of input and output pricing of the Indian steel industry. We have provided a quick comparison of global and domestic prices along with specific emphasis on raw material prices. Clearly Steel raw material prices are on an upswing. Iron ore contract prices for 2005 have settled at price levels which are 70% higher than last year's levels. Coking coal, scrap and coke prices have continued to spiral up. Inevitably domestic output prices are tracking international prices, and with international prices likely to fall, owing to a short-term glut it appears industry margins will also decline.

The financial scenario

7. From an investment perspective domestic steel companies distinctly appear to be an attractive option. Consequently whereas in the past the word steel had evoked a negative connotation there appears to have been a radical re-rating as regards the lending and investment community. This is reflected in a sharp increase in the market cap of major domestic steel producers from Rs 440 billion in December 2003 to a whopping Rs 580 billion by March 2005.

8. This has largely been due to the rise in the operating margins of major players and the recent mergers and acquisitions by some Indian companies. A case in point would be the take over of Singapore based Natsteel by Tata Steel. Nat steel is known to have assets in China, Philippines and Thailand. This has given Tata Steel access to a facility with production capacity of about 2.5 million tonnes thereby consolidating its position in the domestic and global market.

The regulatory interface

9. Our study revealed that interestingly enough the Indian government appears distinctly less proactive than their counterparts worldwide.

10. Consequently the Indian steel Industry is amongst the least protected in the world. While developed countries have put numerous tariff and non-tariff barriers on steel exports from the country, the domestic industry is exposed to cheaper imports from competing nations. The government has now formulated a new policy that targets an increase in production (to 110million tonnes by the year 2020) to meet the expected expansion in domestic and international demand in the coming years.

Outlook for industry

11. The domestic steel market weakness appears to be temporary and an aberration in the medium term optimistic outlook specifically as regards the specialty steel segment. We believe that in tandem with the global trend towards consolidation a similar shakeout and M & A activity shall be evidenced in the Indian markets. Consequently we believe this shall lead to strong earnings momentum to the Indian companies under our coverage over the next 2 years.

Introduction

12. The last two decades have seen economic activity as a whole shift dramatically to the developing world. Most developing regions are now growing faster than their average growth rates in the 1980s and 1990s. This high growth momentum has continued in the current decade as well, in fact we notice that the growth in the developing world far outpaces the growth in developed world.

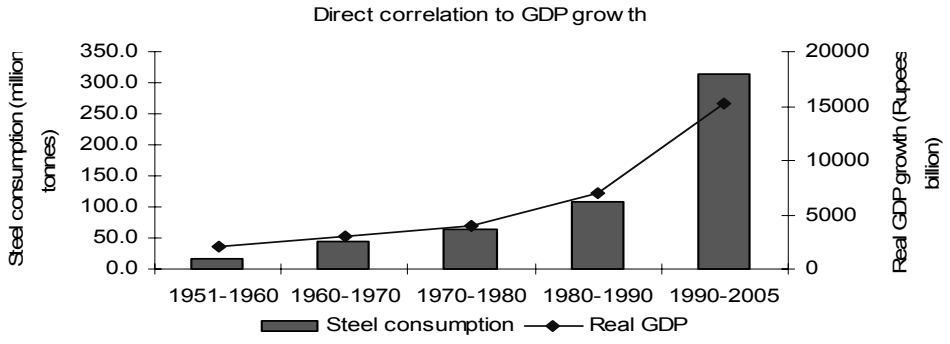
Real GDP growth (percentage)	2003	2004e	2005F	2006F	2007F
World	2.5	3.8	3.1	3.1	3.2
High income countries	1.9	3.2	2.4	2.6	2.6
OECD Countries	1.8	3.1	2.3	2.5	2.6
Euro Area	0.5	1.8	1.2	2.2	2.6
Japan	1.4	2.6	0.8	1.9	1.9
USA	3	4.4	3.9	3	2.6
Non-OECD countries	3.2	6.2	4.4	4.5	4.1
Developing countries	5.3	6.6	5.7	5.2	5.4
East Asia and Pacific	**8.0**	**8.3**	**7.4**	**6.9**	**7.2**
Europe and Central Asia	5.9	6.8	5.5	4.9	5.0
Latin America and Caribbean	1.7	5.7	4.3	3.7	3.7
Middle East and N. Africa	5.8	5.1	4.9	4.3	4.3
South Asia	**7.8**	**6.6**	**6.2**	**6.4**	**6.7**
Sub-Saharan Africa	3.4	3.8	4.1	4	4.1

Source: World Bank

13. One of the most obvious ramifications of this trend has manifested themselves in rising incomes in the developing world. A corollary to the rising incomes in these regions has been growth in populations, which has provided a plentiful supply of cheap labour. This has led to a progressive transfer of an increasing proportion of the world's labour-intensive manufacturing activity to these countries. Furthermore these economies are in the midst of a massive development in infrastructure as well as a housing boom. The increased global demand for commodities in general and steel in particular has been a significant outcome of such rapid economic changes, particularly in the developing economies.

14. *This paper seeks to briefly contextualize the Indian Steel industry against the background of global trends but will focus primarily on the changes in domestic consumption and production.*

An overview: The steel industry

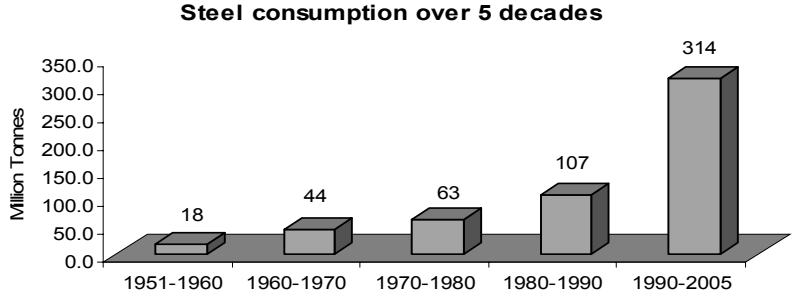


15. The Indian Steel industry is almost 100 years old now. Till 1990, the Indian steel industry operated under a regulated environment with insulated markets and large-scale capacities reserved for the public sector. Production and prices were determined and regulated by the Government, while SAIL and Tata Steel were the main producers, the latter being the only private player. The industry took its first faltering steps in1907 with the setup of the first integrated steel plant in Jamshedpur by TISCO. Since then the Indian steel industry has emerged as one of the core sectors in the Indian economy with a very significant impact on economic growth.

16. The 90's were a very tumultuous time for the Indian economy 1992 saw India take its first steps towards economic liberalization. Along with the opening up of the economy Indian Steel also saw the entry of a number of domestic players. Private investment flowed into the industry adding fresh capacities. The major growth came after economic liberalization in 1992.Steel production and consumption, which were earlier controlled by government, were liberalized. This encouraged the growth of private enterprises that were further responsible for the growth of the industry, especially between 1990-2005.17. In 1990, the Indian steel Industry had a production capacity of 23 MT, the last decade saw the Indian steel industry integrating with the global economy and evolving considerably to adopt world-class production technology to produce high quality steel. The total investment in the Indian steel since 1990 is over Rs 25 000 crores mostly in plant equipments, which have been installed after 1990. The current production capacity of Indian Steel is an estimated 43 MT.

18. The years between 1997 and 2001 once again saw a downturn in the global steel industry some of the significant characteristics of this period were:

- Demand –supply mismatch.
- Unremunerative prices.
- Erosion of bottomlines.



19. But the industry weathered the storm only to recover in 2002 and is beginning to get back on its feet given the strong domestic economic growth and revival of demand in global markets.

20. Today, India produces international standard steel of almost all grades/varieties and has been a net exporter for the past few years, underlining the growing acceptability of its products in the global market.

The Indian steel industry - Backbone of the Indian economy

- Provides direct/indirect employment to over 2 million people.
- Ranks 4th out of 60 sectors in the CSO index of Indian economy with a forward linkage of 4.79.
- Rupees one lakh of output generates 1.3 man years of employment.

21. Steel is a highly capital intensive industry and cyclic in nature. Its growth is intertwined with the growth of the economy at large, and in particular the steel consuming industries such as manufacturing, housing and infrastructure. As India moves ahead in the new millennium, the steel industry will play a critical role in transforming India into an economic superpower.

The Indian steel industry can be divided into two distinct producer groups

22. *Major producers:* Also known as Integrated Steel Producers (ISPs), this group includes large steel producers with high levels of backward integration and capacities of over 1 MT.

The following companies form this group:

- Steel Authority of India Limited (SAIL).
- Tata Steel (TISCO).
- Rashtriya Ispat Nigam Limited (RINL).
- Jindal Vijayanagar Steel Limited (JVSL).
- Essar Steel.
- Ispat Industries.

SAIL, TISCO and RINL produce steel using the blast furnace/basic oxygen furnace (BF/BOF) route that uses iron ore, coal/coke as the basic input mix for producing finished steel. Other major producers such as Essar Steel, Ispat Industries and JVSL use routes other than BF/BOF for producing steel. While Essar Steel and Ispat Industries employ Electric Arc Furnace (EAF) route that uses sponge iron, melting scrap or a mix of both as input, JVSL uses COREX, a revolutionary technology for making steel using basically iron-ore and coal.

The Major producers are vital to the industry as they account for most of the mild steel production in the country. The group produces most of the flat steel products in the country including Hot Rolled, Cold Rolled and Galvanized steel. The majors also produce a small proportion of Long products and other special steel being produced in the country.

23. *Other producers:* This group consists of smaller stand-alone steel plants that include producers and processors of steel

- Processors/Rerollers: Units producing small quantities of steel (flat/long products) from materials procured from the market or through their own backward integration system.
- Stand alone units making pig iron and sponge iron.
- Small producers using scrap-sponge iron-pig iron combination produce steel ingots (for long products) using Electric Arc Furnace (EAF) or Induction Arc Furnace (IAF) route.

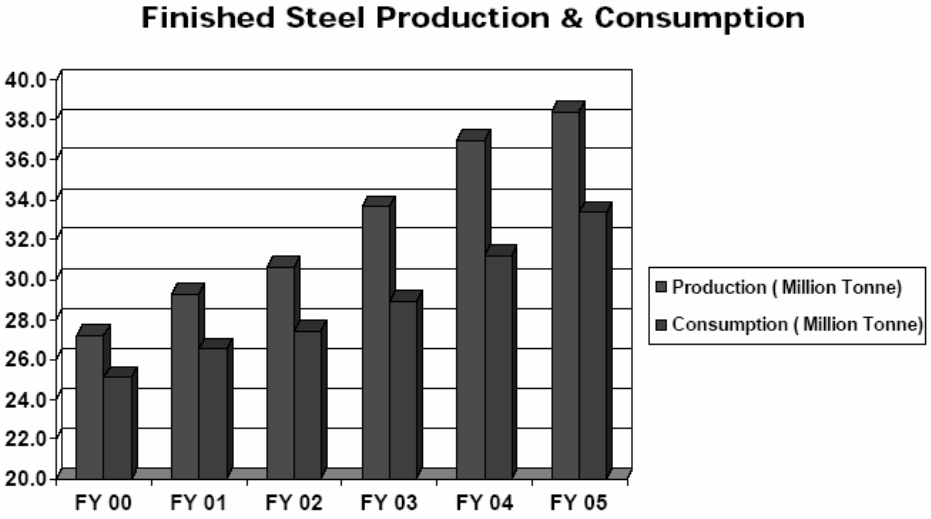
Other producers account for a majority of long products being produced in the country and some of the value added flat steel products like cold rolled steel and galvanized steel.

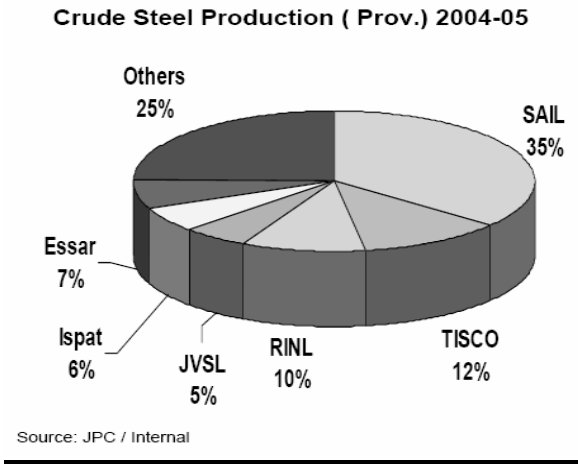
Key highlights

- **The Indian steel industry currently provides direct/indirect employment to over 2 million people.**
- **8th largest steel producing nation in the world with crude steel production of 35 million tones in 2004-2005.**
- **Per capital consumption is approx 30 kg.**
- **India is a net exporter with imports of approx. 2 million tones in 2004-2005(growth of 33%).**
- **Largest producer of sponge iron in the world (production of 10 million tones approx. in the 2004-2005, a growth of 24%).**
- **The Indian Steel industry has a current capacity of 43 MT.**

Production & consumption trends

24. This report will look at the Production and consumption trends in domestic industry in terms of changes in production consumption ratios, contributions by individual players as well as a brief look at changing nature of demand and supply and consumption patterns.





Company	04-05 (Million tonnes)
SAIL	12.46
TISCO	4.10
RINL	3.45
ESSAR	2.36
ISPAT	1.99
JVSL	1.85
OTHERS	8.61
Total	34.82

Demand – supply

India Steel – Demand Supply Model

	F2000	F2001	F2002	F2003	F2004	F2005	F2006E	F2007E	F2008E
Capacity (Crude steel mt)	33.6	34.1	34.2	35.1	39.4	43.2	47.0	50.4	55.6
YoY change %	3.7	1.5	0.2	2.7	12.2	9.7	8.8	7.2	10.3
Production (Crude steel mt)	25.7	26.9	28.0	30.4	34.2	35.8	39.2	42.6	46.6
YoY change %	5.8	4.8	4.0	8.9	12.5	4.5	9.5	8.7	9.4
Operating rate %	76.4	78.9	81.8	86.8	87.0	82.9	83.4	84.5	83.8
Apparent consumption (Finished steel mt)	25.0	26.9	27.4	28.9	31.2	33.3	35.8	38.5	41.7
YoY change %	8.0	7.4	1.8	5.7	8.0	6.6	7.6	7.5	8.3

Source: JPC, Morgan Stanley Research estimates

Demand

Consumption pattern in 2005

HR flats: Consumption pattern — Table 1

(per cent)	Plates	Sheets	Coils/strips	Total
Pipes and tubes	1.3	1.1	37.2	29.1
CR units and galvanised sector	0.4	0.4	38.0	28.7
Automobiles	7.3	5.0	2.5	10.7
LPG cylinders	-	20.0	0.6	6.8
Railways	16.0	7.7	0.4	9.4
Cold rolled formed sections	-	1.0	-	3.5
Agricultural implements	2.0	1.0	0.4	3.5
Industrial machinery and equipment	8.0	6.8	10.0	2.3
Ports and ship building	1.8	-	-	3.0
Engineering	16.0	15.0	4.1	1.8
Construction	34.6	27.0	4.0	0.7
Government	7.2	5.0	1.0	0.1
Others	5.4	10.0	1.8	0.3
Total	**100.0**	**100.0**	**100.0**	**100.0**

Source: SSERC Handbook

CR sheets/coils: Consumption pattern — Table 2

(per cent)	
Coating sector	36.0
Automobiles	22.2
General engineering	8.9
Cycles	8.0
Drums, barrels and containers	7.0
Tubes	7.1
Household goods and furniture	5.3
White goods	5.3
Total	**100**

Source: SSERC Handbook

GP/GC sheets: Consumption pattern — Table 3

(per cent)	
Roofs, panels and shutters	56.0
Trunks, drums, barrels, and buckets	10.0
Engineering/fabrication	10.0
White goods	13.0
Furniture	5.0
Agricultural implements	2.0
Grain storage bins	2.0
Automobiles/bus bodies	2.0
Total	**100.0**

Source: SSERC Handbook

Steel products: Apparent consumption (2004-05 E) — Table 17

('000 tonnes)	Production	Imports	Exports	Apparent consumption
Longs	**15,188.6**	**154.3**	**233.1**	**15,109.7**
- Bars and rods	11,405.1	102.9	209.1	11,298.9
- Structurals	2,833.7	51.4	24.0	2,861.1
- Railway materials	949.7	0.0	0.0	949.7
Flats	**21,954.9**	**1,645.7**	**3,366.9**	**20,233.7**
- Plates	2,418.9	385.7	166.3	2,638.3
- HR coils/skelp	9,010.3	600.0	1,140.0	8,470.3
- HR sheets	1,124.6	24.0	0.0	1,148.6
- CR sheets/coils	5,535.4	342.9	766.3	5,112.0
- GP/GC sheets	3,049.7	85.7	1,148.6	1,986.9
- Electrical steel sheets	128.6	90.9	25.7	193.7
- Tin plates (including large width)	138.9	60.0	36.0	162.9
- Tin free steel	0.0	27.4	0.0	27.4
- TMBP	18.9	0.0	0.0	18.9
- Pipes	529.7	29.1	84.0	474.9
Total finished steel	**37,143.4**	**1,800.0**	**3,600.0**	**35,343.4**

E: Estimate

TMBP: Tin mill black plate

Source: JPC & CRIS INFAC

Category wise consumption of steel products based

Products	2005-06	2006-07	2007-08	2008-09	2009-10
Bars and Rods	12,214	12,879	13,593	14,471	15,465
Structurals	3,084	3,252	3,432	3,654	3,904
Railway Materials	1,014	1,069	1,129	1,202	1,284
Plates	2,369	2,498	2,636	2,806	2,999
HR coils/stripe	9,130	9,628	10,161	10,818	11,560
HR sheets	794	837	883	941	1,005
CR sheets/coils	5,679	5,989	6,320	6,729	7,191
GP/GC sheets	1,743	1,838	1,940	2,065	2,207
Electrical steel sheets	218	230	243	258	276
Tin plates	223	235	248	264	282
Tin free steel	54	56	60	63	68
TMBP	42	44	46	49	53
Pipe (large dia)	654	689	728	775	828
Total Finished Steel	**37,217**	**39,244**	**41,417**	**44,095**	**47,121**

Source: CRIS INFAC

Supply

Finished steel products: Production

('000 tonnes)	Flat products	Growth (per cent)	Long products	Growth (per cent)	Total	Growth (per cent)
1990-91	4,789	-	7,845	-	12,634	-
1991-92	5,221	9.0	8,129	4	13,350	5.7
1992-93	5,498	5.3	8,562	5	14,060	5.3
1993-94	5,710	3.9	8,194	-4	13,904	-1.1
1994-95	6,313	10.6	9,701	18	16,014	15.2
1995-96	8,302	31.5	10,915	13	19,217	20.0
1996-97	8,555	3.0	11,513	5	20,068	4.4
1997-98	8,889	3.9	11,474	0	20,363	1.5
1998-99	9,057	1.9	11,422	0	20,479	0.6
1999-2000	11,121	22.8	11,732	3	22,853	11.6
2000-01	12,002	7.9	12,648	8	24,650	7.9
2001-02	12,018	0.1	12,809	1	24,827	0.7
2002-03	13,808	14.9	13,923	9	27,731	11.7
2003-04 E	14,919	8.0	15,121	8.6	30,040	8.3

E: Estimate

Source: CRIS INFAC

Long product: production

('000 tonnes)	Bars and rods	Growth (per cent)	Structurals	Growth (per cent)	Railway materials	Growth (per cent)	Total	Growth (per cent)
1990-91	5,603	-	1,712	-	530	-	7,845	-
1991-92	5,851	4.4	1,741	1.7	537	1.3	8,129	3.6
1992-93	6,023	2.9	1,993	14.5	546	1.7	8,562	5.3
1993-94	5,779	-4.1	1,825	-8.4	590	8.1	8,194	-4.3
1994-95	7,012	21.3	2,109	15.6	580	-1.7	9,701	18.4
1995-96	7,878	12.4	2,459	16.6	578	-0.3	10,915	12.5
1996-97	8,361	6.1	2,533	3.0	619	7.1	11,513	5.5
1997-98	8,140	-2.6	2,724	7.5	610	-1.5	11,474	-0.3
1998-99	8,149	0.1	2,740	0.6	533	-12.6	11,422	-0.5
1999-2000	8,703	6.8	2,547	-7.0	482	-9.6	11,732	2.7
2000-01	9,590	10.2	2,440	-4.2	618	28.2	12,648	7.8
2001-02	9,830	2.5	2,277	-6.7	702	13.6	12,809	1.3
2002-03	10,672	8.6	2,367	4.0	884	25.9	13,923	8.7
2003-04 E	11,136	4.3	3,056	29.1	929	5.1	15,121	8.6

E: Estimate

Source: CRIS INFAC

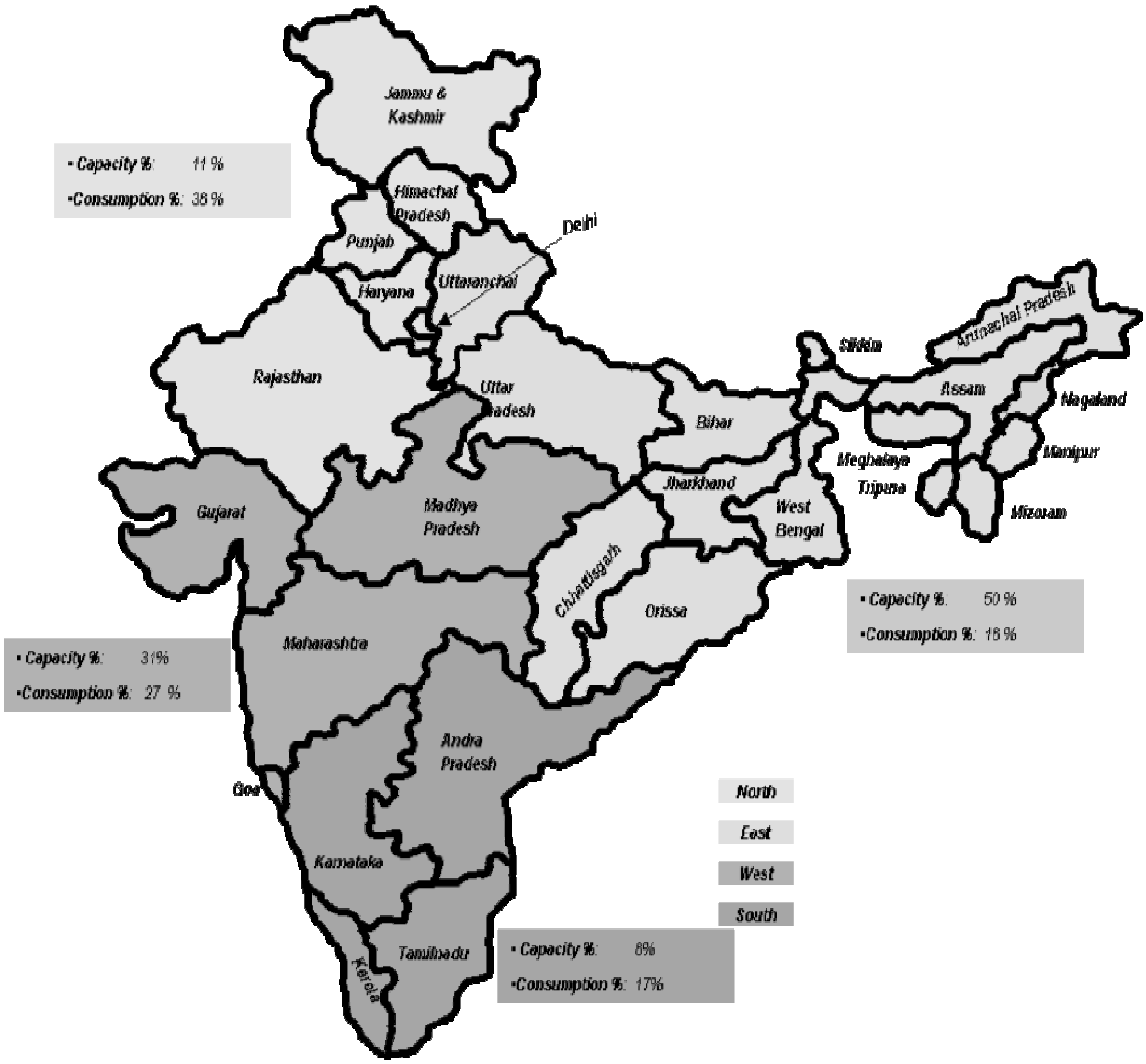
Flats product: Production

('000 tonnes)	HR flats	Growth (per cent)	HR coils	Growth (per cent)	Plates	Growth (per cent)	CR flats	Growth (per cent)	GP/GC sheets	Growth (per cent)
1990-91	4,789	-	3,105	-	1,684	-	1,580	-	487	-
1991-92	5,221	9.0	3,368	8.5	1,853	10.0	2,001	26.6	501	2.9
1992-93	5,498	5.3	3,756	11.5	1,742	-6.0	2,094	4.6	529	5.6
1993-94	5,710	3.9	4,022	7.1	1,688	-3.1	2,228	6.4	538	1.7
1994-95	6,313	10.6	4,618	14.8	1,695	0.4	2,533	13.7	735	36.6
1995-96	8,302	31.5	6,164	33.5	2,138	26.1	2,961	16.9	858	16.7
1996-97	8,555	3.0	6,646	7.8	1,909	-10.7	3,312	11.9	953	11.1
1997-98	8,889	3.9	7,117	7.1	1,772	-7.2	3,806	14.9	1,233	29.4
1998-99	9,057	1.9	7,243	1.8	1,814	2.4	3,865	1.5	1,476	19.7
1999-2000	11,121	22.8	9,424	30.1	1,697	-6.4	4,635	19.9	1,601	8.5
2000-01	12,002	7.9	10,146	7.7	1,856	9.4	5,045	8.9	1,901	18.8
2001-02	12,018	0.1	10,244	1.0	1,774	-4.4	5,574	10.5	2,307	21.3
2002-03	13,808	14.9	11,973	16.9	1,835	3.4	6,202	11.3	2,722	18.0
2003-04 E	14,919	8.0	12,747	6.5	2,172	18.4	6,889	11.1	2,851	4.7

E: Estimate

25. In a country as vast as India it becomes essential to study the production and demand logistics in the context of geographical and demographic structures as well as their impact on capacity concentration

Geographical structure of demand



Capacities are concentrated in East and West India, while demand is centered in North and West India.

Reason for capacity concentration

- Most of the capacities in steel are concentrated in the east and the west as primary integrated producers are based in the east near the raw materials, while the secondary producers are based in the west. Demand is concentrated in the north and west as the consumption centres are located here.
- This trend was the same 8-10 years as well.
- Going forward we expect a much higher concentration in the east as most of the integrated capacities are coming up in Orissa due to its raw materials.

Demand mix is likely to be the same as these states will continues to drive consumption.

Imports of iron & steel

26. Iron & Steel are freely importable as per the extant policy. India has been importing around 1.5 Million Tonnes of steel annually. Last four year's import of Finished (Carbon) Steel is given below:

Year	Qty. (In Million Tonnes)
2001-2002	1.271
2002-2003	1.51
2003-2004	1.54
2004-2005	2.109
2005-2006[E]	2.7

Source: -JPC.

Exports of iron & steel

27. Iron & Steel are freely exportable. Advance Licensing Scheme allows duty free import of raw materials for exports. Duty Entitlement Pass Book Scheme (DEPB) introduced to facilitate exports. Under this scheme exporters on the basis of notified entitlement rates, are granted due credits which would entitle them to import duty free goods. The DEPB scheme was temporarily suspended from 27 March 2004 to 12 July 2004 for export of steel items. The Scheme has since been restarted. The DEPB rates have also been substantially reduced.

28. Exports of finished carbon steel and pig iron during the last four years is as:

Year (Qty. in Million Tonnes)	Finished (carbon steel)	Pig iron
2001-2002	2.704	0.312
2002-2003	4.506	0.629
2003-2004	4.835	0.518
2004-2005	4.381	0.393
2005-2006 [E]	3.225	0.177

Ownership structure

- Till the previous decade the Indian steel sector was perceived as a core sector and was dominated by public sector investment.
- This has changed post liberalization in 1991 when the growth in the economy started attracting a large number of private players to steel, with most of the investment flowing into the secondary sector.
- The share of private sector is almost equal to the share of public sector in crude steel.
- However the share of private sector is much higher (~69%) in finished steel, which requires smaller capacities and investment.
- In the finished products, 5 companies account for more than 80% production share in the Hot rolled Flats, which requires large capacities as against 22 players in CR and 19 in GP/GC, which requires small capacities.
- The Longs sector is again highly fragmented with no player occupying a dominant share.

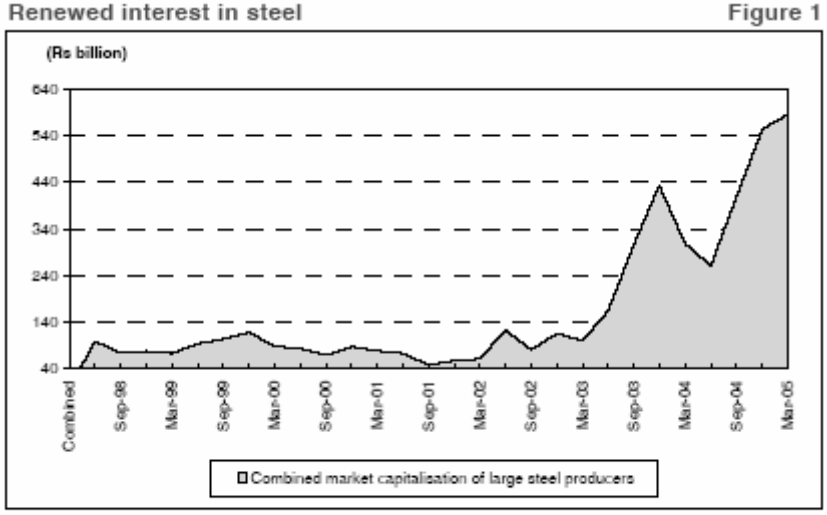
FINANCIAL STRUCTURE AND COMPARISON

Financial performance

Steel sector: In the midst of a boom

29. The Indian steel industry's impressive performance, which started in 2002-03, continued in 2003-04 and 2004-05 as well. After facing trying times in 2001-02, the industry's financials are now extremely healthy on the back of high global prices and continued strong demand. The word steel, which evoked negative feelings in the past in the lending and investment community, has received a complete makeover. The sector is now basking in the flattering attention that it is getting from investors, which is reflected in the sharp increase in the market capitalization of all major steel producers after 2001-02

Renewed interest in steel — Figure 1



Note
Producers include SAIL, Tisco, JVSL, Essar, Ispat, Jisco and Bhushan
Source: CRIS INFAC

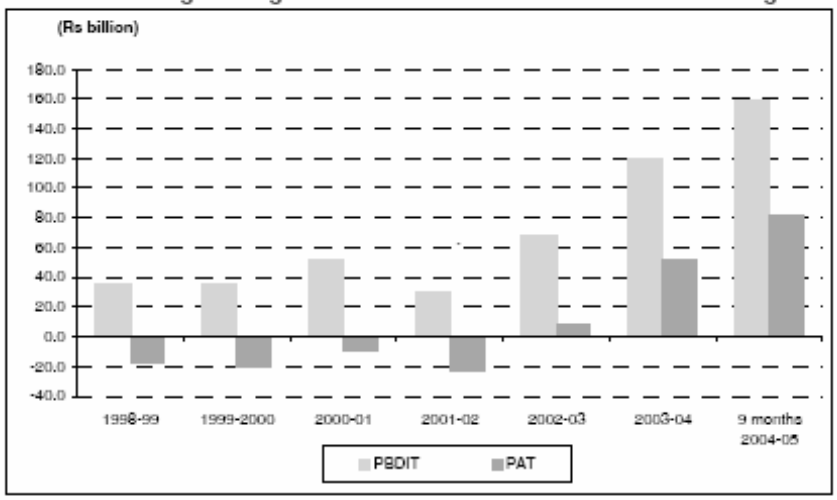
30. The industry's performance in 2003-04 and 2004-05 was driven by a sharp surge in international prices and an increase in both exports as well as domestic demand. As far as industry fundamentals are concerned, long products have been more stable than flat products. But it is the changes in the flat products segment that have had the biggest impact on the performance of the industry.

31. The factors that had an impact on domestic steel prices and player profitability are:

- International flat steel prices (domestic flat steel prices closely follow global prices).
- Dependence of the industry on exports to tide over the problems caused by oversupply in the domestic market (especially in the downstream segment).
- Supply tightness in the domestic market, resulting in high prices and mounting government pressure.
- Weak protection against imports.
- The industry's capital structure, which is too weak to sustain the long phases of low prices.
- Increasing consolidation in the industry.

32. Players in the industry are taking different routes to achieve competitive advantage in the domestic and international market, and most importantly, to achieve sustainable profitability.

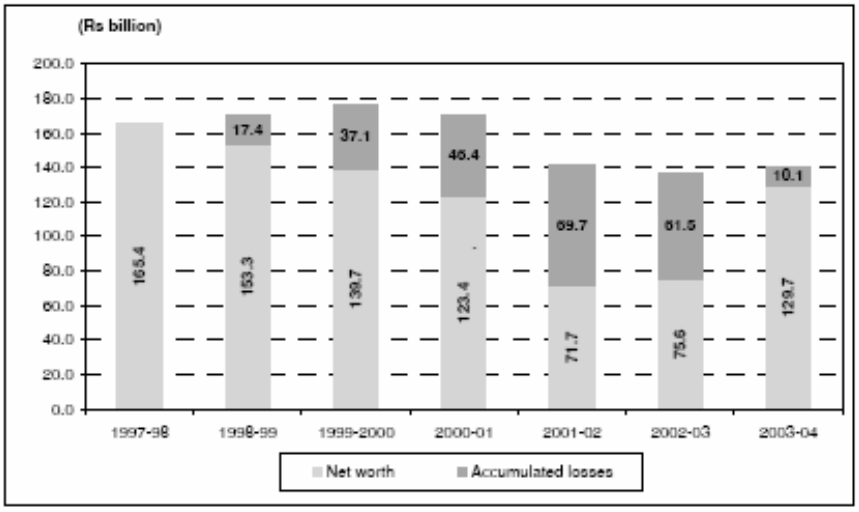
2004-05: Strengthening financials Figure 3



Note
Note: Producers include SAIL, Tisco, JVSL, Essar, Ispat, JISCO and Bhushan
Source: Prowess

33. The timing of the turnaround was critical, as the industry could not have survived the high losses it was making year after year. But, in 2003-04 and 2004-05, it has almost wiped out the accumulated losses and restored the eroded net worth.

Recovering lost ground Figure 4



Note
Producers include SAIL, Tisco, JVSL, Essar, Ispat, JISCO and Bhushan
Source: Prowess

34. The industry's debt levels also fell appreciably. In 2003-04, on the back of huge cash flows, it was able to repay Rs 62 billion, which improved its credit profile significantly

Credit profile steady despite declining profitability

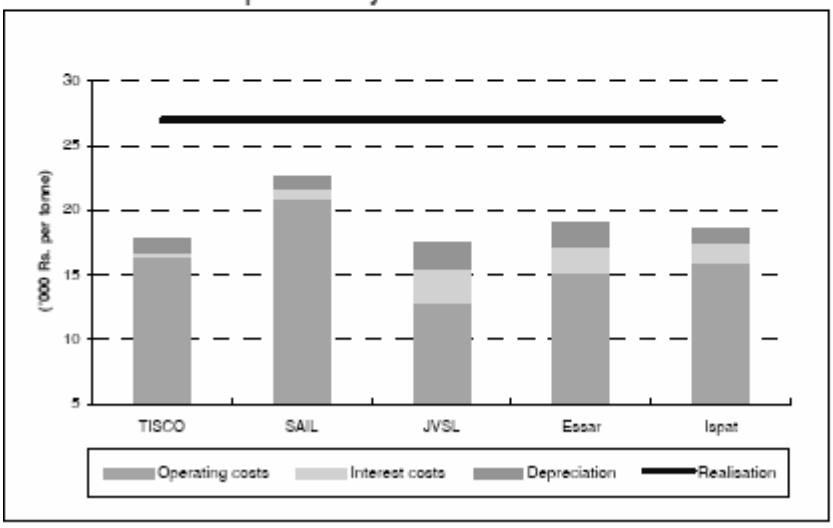
35. Buoyed by high steel prices, the industry's financials showed a remarkable improvement in 2003-04 and the first half of 2004-05. The credit profile was also satisfactory due to lower gearing and improved debt-servicing indicators (on the back of healthy profitability).

Improvement in key financial indicators

	Mar 2002	Mar 2003	Mar 2004	FH 2004-05
Operating profit margin (per cent)	10.4	17.8	23.5	30.8
Net profit margin (per cent)	-8.1	2.0	10.0	16.0
RoCE	2.4	12.2	23.4	-
Debt-equity ratio (times)	4.3	4.7	2.2	-
Interest cover (times)	1.0	2.3	4.8	7.1
Current ratio (times)	0.7	0.7	0.8	-

Source: Prowess

2005-06: Continued profitability



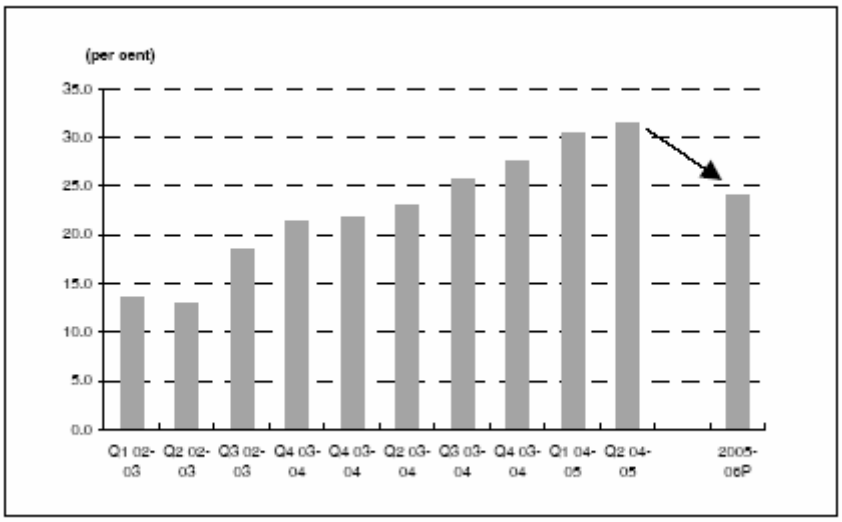
Source: CRIS INFAC

36. Even though operating profitability is likely to decline, we expect the industry's credit profile to remain steady in 2005-06 because the industry's profits will still remain healthy and support its debt-servicing capabilities. However, in our view that caution should be exercised while lending to new projects that have high gearing, as the industry fundamentals are likely to deteriorate in the longer term (by 2008-09).

Operating profitability to fall

37. The industry's operating profit margins are likely to decline in 2005-06 due to rising raw material costs. Average domestic prices are likely to remain in the region of Rs 27 000-30 000 per tonne, a marginal decline from the average levels at present. On the other hand, raw material prices are likely to rise in line with global prices, driving down operating margins in the process. We expect that there will be a negative impact to the extent of 10 per cent on player margins from the current levels of 20-25%, although the impact is likely to vary with the extent of backward linkage. Due to better backward linkages, the major domestic players will be able to restrict the decline in their margins to 7-8 per cent from the current level.

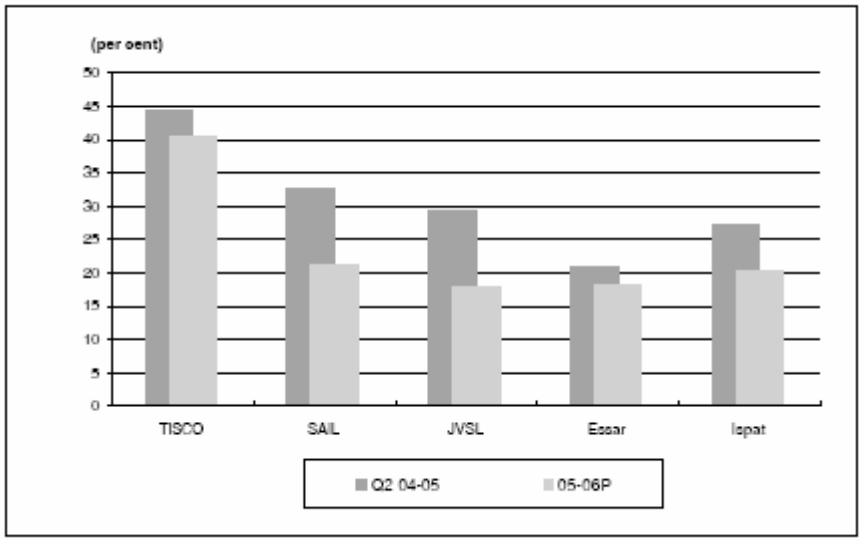
Operating margins to face downward pressure



Source: CRIS INFAC

38. The main players in the industry would be able to restrict the decline with the help of backward integration. Some players are already benefiting from the use of technology that does not require coking coal. Taking the price of inputs in 2003-04, and the net sales as reported in Q2 of 2004-05 as a base case, we estimate that the aggregate operating margins of the players will decline by 6-7% with a rise in input costs. SAIL will be affected the most, as it has to import a huge quantity of coking coal. Essar and TISCO will be the least affected, as they do not depend as much on imported raw material. TISCO will retain its top position. In spite of the decline, the margins of the steel producers will remain healthy.

Declining margins Figure 1



Source: CRIS INFAC

Industry: Cumulative financial

	FY2005	FY2004
No: of Companies	61	71
Net Sales	908336.7	663032.43
Operating Income (OI)	926689.4	684936.55
Expenses	665451.1	540813.93
OPBDIT	261238.4	144122.62
OPBDT	227146	108041.29
OPBT	186016.5	66160.22
PBT	115366.3	45631.27
PAT	145659.9	59690.77
Gross Block	837207.8	811751.52
Net Block	490029.8	481283.77
CWIP	63778.16	50759.89
Investment	29701.63	36042.07
Current Assets	203190.5	165157.89
Equity Capital	77427.65	90514.44
Reserves	202203.6	66137.05
Debt	404887.3	436798.01
OCL	218553.3	207285.75
ROCE	21.28%	10.06%
RONW	52.09%	38.10%
D/E	1.45	2.79
Interest Coverage	6.46	2.83
Tax Payout	17.22%	19.06%
Dividend Payout	16.46%	8.22%
YOY OI Growth	35.30%	37.35%
YOY PAT Growth	144.02%	1027.01%

Source: Parijat Consulting

A comparative look

Income statement [Rs mn]

	Essar Steel Limited	Ispat Industries Limited	Jindal Iron & Steel Company Limited	Steel Authority Of India Limited	Tata Steel Limited
Comparison	**31-Mar-05**	**31-Mar-05**	**31-Mar-05**	**31-Mar-05**	**31-Mar-05**
Months	12	12	12	12	12
Gross Sales	60983.9	56876	22519.03	283449	144989.5
Operating Income	61024.9	61037.1	22700.74	293314.5	145797.6
OPBDIT	18668.1	14911.4	9326.18	100004.6	60460.8
OPBDT	13824.7	8383.1	8388.44	93875.8	58172.8
OPBT	9881.8	4023.2	6860.52	82606.3	51985
Non Operating Income	35.5	880.8	-80.14	2449.1	1900.1
Extraordinary Item	-3935	2056.9	-860.05	-9845	-799.9
PAT	5901.5	6960.6	763.29	68169.7	34741.6

Source: Parijat Consulting

Balance sheet [Rs mn]

	Essar Steel Limited	Ispat Industries Limited	Jindal Iron & Steel Company Limited	Steel Authority Of India Limited	Tata Steel Limited
Comparison	**31-Mar-05**	**31-Mar-05**	**31-Mar-05**	**31-Mar-05**	**31-Mar-05**
Assets					
Gross Block	69401.7	76598.7	25302.83	279685.7	149577.3
Net Block	32488.3	58133.9	21685.25	124850.7	91122.4
CWIP	5896.4	9333.4	3456.97	3664.8	0
Investments	7260.9	534.3	305.48	6067.1	6786.1
Inventories	9332.2	6290.2	2575.52	42206.9	18724
Receivables	4713	10669.9	1729.08	19084.5	5818.2
Other Current Assets	23275.7	11001.3	6112.1	82044.9	33834
Total Assets	**82966.5**	**95963**	**35864.4**	**277918.9**	**156284.7**
Liabilities					
Equity	5079.8	6858	153.96	41304	5536.7
Reserves	6865.4	13344	13019.72	58813.2	62914.3
Total Debt	53586	60885.9	14968.57	57697.9	27397
Creditors	6794.7	10042.6	1917.67	0	23749.8
Other Current Liabilities	10640.6	4832.5	5804.48	120103.8	36686.9
Total Liabilities	**82966.5**	**95963**	**35864.39**	**277918.9**	**156284.7**

Source: Parijat Consulting

Ratio analysis

	Tisco	SAIL	*Essar steel*	Jindal steel	Ispat
As on 31 mar 2005					
OPBIT/Prod.cap.empl. (%)	75.88	59.92	28.34	32.02	14.82
PBIT/Cap. Employed (%)	57.77	52.77	18.15	27.78	18.8
PAT/Net worth (%)	50.75	68.09	49.4	39.15	34.46
Tax/PBT (%)	34.56	9.36	1.35	12.89	0
Total Debt/Net worth (x)	0.4	0.58	4.49	1.14	3.01
Long Term Debt/Net worth (x)	0.37	0.3	3.21	0.85	2.69
PBDIT/Finance Charges (x)	26.91	15.11	3.05	8.94	2.73
Current Ratio (x)	0.97	1.19	2.14	1.35	1.88
RM Inventory (days consumption)	85.02	134.73	95.07	130.67	31.47
FG inventory (days cost of sales)	37.95	0	18.55	25.96	9.57
Receivables (days gross sales)	13.38	21.91	26.33	25.78	64.1
Creditors (days cost of sales)	101.58	0	58.55	52.33	79.47
Op. curr. assets (days OI)	85	178	143	167	149

Source: Parijat Consulting

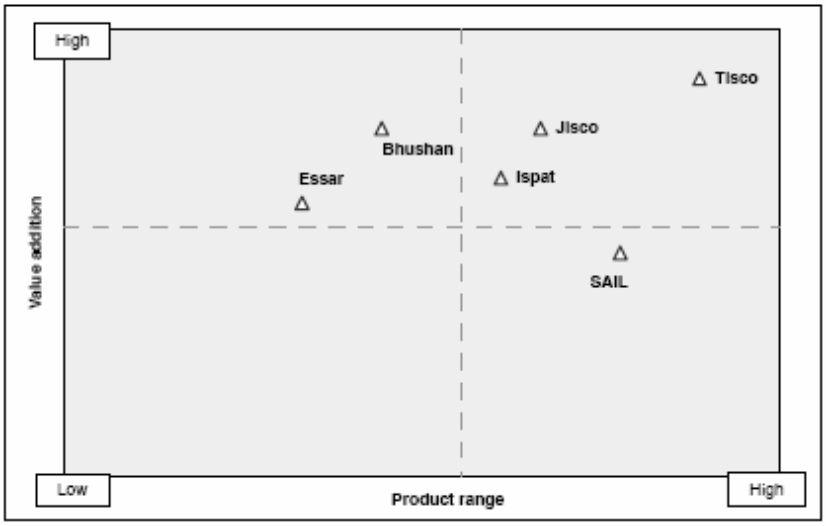
Market capitalization and equity related ratios

As on 31 mar 2005	TISCO	SAIL	Essar steel	Jindal steel	Ispat
Market capitalization	222385393540	261660874525	16741298640	32331881400	34839603213
EPS (Rs.)	94.16	16.5	11.63	167.48	10.05
CFPS (Rs.)	110.93	19.23	19.41	217.1	16.35
Book Value (Rs.)	185.51	24.24	23.55	427.82	29.17
DPS (Rs.)	19.5	3.3	0	15	0

Source: Parijat Consulting

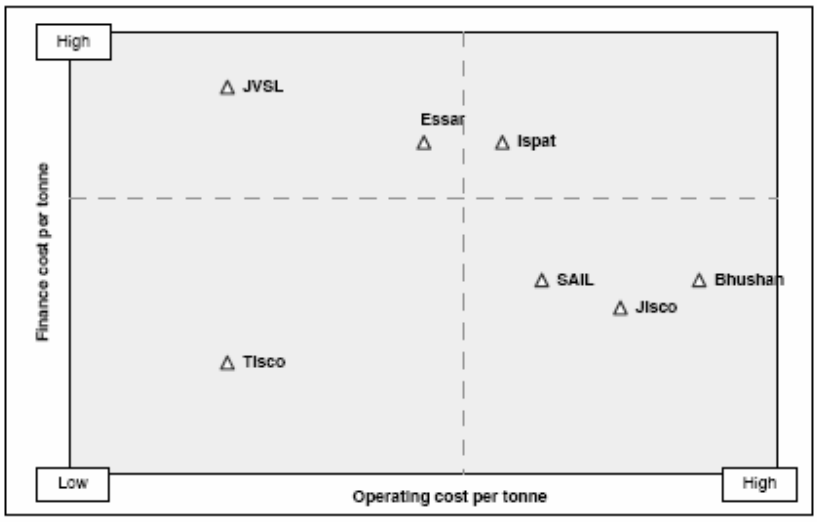
Competitive position of the 5 principal producers

Competitive position on value addition — Figure 3



Note
We have factored in the product profile of JISCO after its merger with JVSL.
Source: CRIS INFAC

Competitive position on costs — Figure 2



Source: CRIS INFAC

STEEL MARKET DEVELOPMENT

M&A activity and consolidation trends

Global steel industry on a merger spree

39. The global steel industry is in the grip of a merger spree. The driver of M&A activity was the LNM group, which topped the M&A chart. In October 2004, Mittal Steel (now the holding company of the LNM group) acquired US-based International Steel Group and emerged as the largest steel producer in the world, with an annual production capacity of around 70 million tonnes. Arcelor, with annual shipment capacity of around 47 million tones, is now the second largest steel maker in the world. The other significant mergers announced (and/or completed) in last 2-3 years are as under:

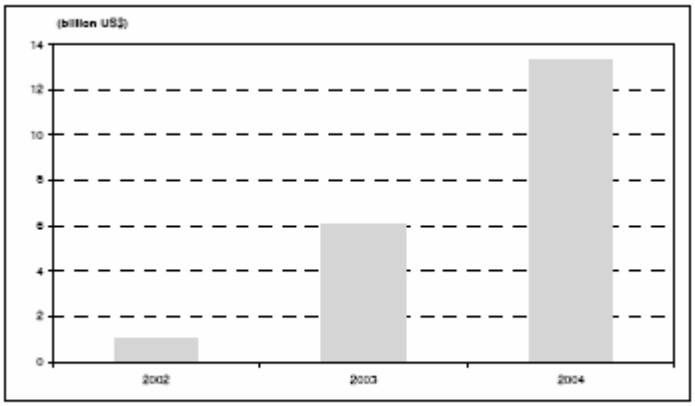
Mergers and acquisitions: Global — Table 2

Date	Target Name	Acquirer Name	Value (Million $)	Deal Status
25-Oct-04	International Steel Group	Mittal Steel Co NV	4,733.23	Pending
31-Dec-04	Anshan Iron & Steel Group	Angang New Steel Co-A	2,177.54	Pending
01-Jun-03	Bethlehem Steel Corp	International Steel Group	1,500.00	Complete
23-Jan-03	National Steel Corp-Cl B	Ak Steel Holding Corp	1,125.00	Terminated
09-Jan-03	Polskie Huty Stali Sa	Lnm Holdings Nv	1,105.34	Complete
01-Sep-03	National Steel Corp-Cl B	United States Steel Corp	1,050.00	Complete
17-Jun-02	Mittal Steel Ostrava As	Lnm Holdings Nv	598.75	Complete
28-Jun-04	Cia Siderurgica Tubarao-Pref	Arcelor	574.56	Pending
02-Sep-05	Lucchini Spa	Cherepovets Mk Severstal	549.88	Pending
01-Nov-05	Portman Ltd	Cleveland-Cliffs Inc	496.03	Pending
26-Oct-04	Integris Metals Corp	Ryerson Tull Inc	330.00	Complete
14-Jan-05	Hunan Valin Steel Tube & -A	Mittal Steel Co Nv	313.99	Pending
23-Oct-03	Rouge Industries Inc-Cl A	Cherepovets Mk Severstal	285.50	Complete
16-Aug-04	Natsteel Ltd	Tata Iron & Steel Co Ltd	283.69	Complete
26-Mar-03	Yieh United Steel Corp	Yieh Hsing Enterprise Co Ltd	275.69	Pending
09-Sep-04	Certain Assets	Gerdau Ameristeel Corp	266.00	Complete
18-Feb-04	Weirton Steel Assets	International Steel Group	255.00	Complete
30-Jan-04	National Steel Corp	Ispat Industries Ltd	236.50	Pending
12-Nov-04	Ssab Hardtech	Gestamp Automocion	206.03	Complete

Source: Bloomberg

40. The amount transacted in M&A activities almost tripled in 2004 over that of 2003.

Announced total value of M&A transactions Figure 2



Note
$ 15.8 billion is excluded from 2004 numbers transacted for acquisition of LNM holdings by Mittal steel.
Source: Bloomberg

Indian companies not lagging behind

41. In this global steel merger mania, Indian steel companies are not lagging behind. In 2004, Tisco took over a Singapore-based 2.5 million tonne steel company Natsteel, with its assets in China, Philippines and Thailand. The assets that Tisco took over are primarily of long steel. In yet another similar deal, Jindal Stainless took over an Indonesian cold roller called Mapsion stainless steel PT. Ispat Industries is also acquiring assets around the world. In addition to global acquisitions, Indian players are consolidating their position in the domestic market. JISCO and JVSL have merged to form JISCO. Similarly, a merger of Ispat Industries and Ispat Metallics is also on the cards. Given below is a brief list of the domestic as well as global M&A by Indian players.

Mergers and acquisitions: India Table 3

Date	Target Name	Acquirer Name	Value (million $)	Deal status
Jul-03	Lanco Kalahasti Castings Ltd	Lanco Industries	-	Pending
Jul-04	South India Steel Company Ltd	Jindal Vijaynagar Steel Ltd	-	Complete
Oct-03	Mascon Ltd	Tata Iron & Steel Co Ltd	-	Pending
Dec-03	Indian Steel & Wire Products	Tata Iron & Steel Co Ltd	7.72	Pending
Jan-04	National Steel Corp	Ispat Industries Ltd	236.50	Pending
Jun-04	Mandovi Pellets Ltd	Chowgule & Co Ltd	5.42	Complete
Jul-04	Maspion Stainless Steel Pt	Jindal Stainless Ltd	25.02	Complete
Aug-04	Natsteel Ltd	Tata Iron & Steel Co Ltd	283.69	Complete
Sep-04	5 old steel plants of Assam Petrochemicals Ltd	Steelex India	0.30	Pending

Source: Bloomberg and CRISINFAC

Recent change in the steel industry

	3 Years Ago	Today
Consolidation	Highly Fragmented	Market Leadership in Regions
Supply	Global Overcapacity 200 million tonnes	Supply constraints
Demand	Global Recession	China + Global Growth
Raw Materials	Plenty and Cheap	Global Shortage and Expensive
Shipment	Ample Capacity	Tight

Source: Parijat Consulting.

Trends in raw material scenario in India and overseas

42. World steel consumption is on a strong growth path underpinned by the metals-intensive phase of economic growth that is underway in emerging economies such as China and India. The latter is at an inflexion point where steel consumption is likely to take off in a major way. There are new technologies in the pipeline, which can neutralize the effect of poor quality of raw materials and help enhance the competitive advantage. The Indian government needs to streamline policies pertaining to mining rights, grant of approvals, etc., to help the steel and metals industry to capitalize on the opportunities thrown up by this macro environment. To ride the benefits from a cyclical upturn, the industry needs to come together and invest in productivity- and efficiency-improvement measures and desists from unbridled capacity expansion plans.

– Iron ore

43. Iron ore prices likely to remain firm in the medium term; a 10% hike is possible in the next year. Positive for iron ore producers and integrated steel producers. Domestic demand for iron ore to increase by 9% annually till 2012.

- India is endowed with 8.6 bn tonnes of proven iron ore reserves, and another 9.1 bn tonnes of probable and possible reserves. This makes it an ideal place to emerge as a steel-manufacturing hub to meet the burgeoning demand in the Asia Pacific region.
- In FY05, India produced about 145 mn tonnes of iron ore out of which about 72 mn tonnes (roughly 50%) was exported—mostly to Japan, South Korea, and China. In the last five years, production has grown at a CAGR of 14.1% and exports at 19%.
- Domestic demand for iron ore is expected to grow by 9% annually till 2012 and touch 232 mn tonnes.
- Iron ore prices have risen sharply in the recent past (71.5% in FY06) due to higher demand from China. In step with this, domestic iron ore prices also moved up.
- Negotiations currently on between the major producers of steel and the big-three in iron ore mining indicate a price hike of up to 10% for the next year. This is bad news for non-integrated steel producers but good for iron-ore producers.

– Pig iron

44. Pig iron price outlook is stable. Foundry-grade pig iron growth is encouraged by buoyant growth in engineering, automobile, and construction sectors. With casting facilities shifting from high-cost developed countries, pig iron consumption in India to grow by over 7% annually.

- Pig iron, the solid form of hot metal, is broadly divided into two grades—the basic grade and the foundry grade.
- The basic grade finds application in steel making by integrated steel producers and the foundry grade is mostly used by the engineering, construction, and infrastructure industries for alloying purposes, etc.
- Global pig iron production in 2004 stood at 722 mn tonnes. China accounted for 25% of global steel production and 35% of pig iron production. Over FY03-10, global production is expected to grow at a CAGR of 3.1%.
- In 2004, sea-borne trade in pig iron was estimated to be 15 mn tonnes with Brazil, Russia, China, Ukraine, and India being the leading pig iron exporters.
- Higher steel production, lower exports from China, and a surge in ocean freight led to a sharp rise in pig iron prices in 2004. In March-April 2005, prices touched a peak of USD 40/MT and are currently hovering around USD 275/MT (19% lower).
- In India, pig iron consumption has shown a strong growth due to buoyancy in automobiles and construction sectors. Over FY05-09, castings, which is a major consuming segment of foundry-grade pig iron, is expected to grow at a CAGR of 7.1% due to shift in castings capacities from the developed countries.
- Over FY04-07, the availability of pig iron from secondary producers is expected to grow by 12.7% annually to reach 6 mn tonnes (from 4 mn tonnes in FY04).
- In the next two years, availability of foundry-grade pig iron is expected to surge by 40% due to the new facilities commissioned by players like Jindal SAW, Visa, etc.,
- In the manufacture of pig iron, raw materials account for 80% of the costs. Within this, the low-ash metallurgical (LAM) coke accounts for 80% of the cost, making met coke the most critical raw material.
- Foundry-grade pig iron prices are currently around INR 15 000/MT and it is expected to remain stable in the near to medium term.
- With the encouraging outlook for engineering, automobile, and infrastructure sectors, pig iron consumption is expected to grow by 7-10% in the medium term.
- Integrated companies with raw-material linkages are more likely to succeed in the long run.

– Steel

45. Steel consumption continues to grow on the back of strong momentum in China. India is at an inflexion point as it enters into a metals intensive phase of economic growth. With HRC prices stabilizing to around USD 430-460/MT and no softening of iron ore and coke prices in sight, the steel industry margins will get compressed.

46. The Indian steel industry announced huge capacity expansion over 2005-10. This will lead to a fierce price war in the domestic market and exports as a proportion of sale will have to rise significantly.

- Global demand for steel is expected to grow by 2.7% in 2005 and 4.2% in 2006 underpinned by a 6.3% and 6.7% growth in the Asia Pacific region, respectively.
- Average HRC prices have come down from USD 535/MT in 2004 and are likely to stabilize around USD 430-460/MT in the near term.
- Global operating rates are likely to remain stable at around 88%.

- With Chinese production continuing to grow by 29%, China is likely to move into an oversupply zone in 2005. However, the rest of the world shall absorb this excess supply.
- The Chinese economy continues to grow at 9.4% with fixed asset investment growth in excess of 25% and robust real-estate investments. Due to this, Chinese demand is expected to grow by 8-10% annually till 2010.
- China has been reducing its steel imports and is likely to turn into a net exporter in 2005.
- With no respite in prices of key raw materials like iron ore and met coke, global operating costs are likely to remain firm. Against an average operating cost of USD 340/MT in 2004, costs are likely to move up by USD 15-20/MT in 2005. This entails compression in margins—expected to come down to 20-22% in 2005 from 32-36% in 2004.
- Indian steel producers are challenged by poor quality of raw materials, which hinders productivity improvements. There are new technologies in the pipeline, which can be suitably adopted to enhance productivity and output.
- Indian steel consumption continues to grow at 8% annually due to buoyancy in construction, infrastructure, automobiles, consumer durables, pipes and tubes, etc.
- However, existing players as well as new entrants have announced huge capacity expansions—.
- Crude steel capacity, which stood at 43 mn tpa in 2004, is likely to surge to 114 mn tpa by 2010—a massive increase by any imagination.
- To put things in perspective, between 2000-2005, India added 8 mn tpa of steel capacity at a capital outlay of INR 141 bn. Going by the announced capacity expansions, between 2006-2010 another 62 mn tpa of steel capacity shall be created at an outlay of INR 1,037 bn.
- Therefore, although demand will continue to grow by 8-10%, capacities will grow by 20% per annum. This will force price competition in the domestic market and pressure realizations.
- In the face of such massive capacity expansions, the only way for Indian producers to maintain operating rates of around 88% will be to hike exports considerably.
- Against exports of 4.5 mn tonnes in FY05 (15% of production), exports in FY10E will have to rise to about 35 mn tones (45% of production).
- This will be possible only if Indian producers are able to contain costs at reasonable levels.

The Indian steel industry – challenges for the future

- Steel is yet to touch the lives of millions of people in India. Per capita consumption of steel in India is only 29 kg and has to go a long way to reach consumption levels of around 400 kg in developed countries like USA and world average of 140 kg.
- There is a need to continue the current thrust on infrastructure related activities and extend them to rural India. Rural Indian today presents a challenge for development of the country and the opportunity to increase usage of steel in these areas through projects such as rural housing etc.
- Current shortage of inputs has pushed up the costs for the steel industry. Government should ensure that quality raw material such iron-ore and coke are available to the industry. With Ministry of Steel targeting an output of 100 MT of steel by 2020 there is an urgent need to develop raw material resources for inputs like iron-ore and coal within or outside the country. Countries like Japan have already taken similar steps to safeguard their industries.
- Adequate enabling infrastructure such as power, ports, roads, rail transport is pre-requisite for the Indian steel industry to remain competitive.
- Government should not regulate prices and free market forces should prevail. Intervention by the Government is only a short-term solution to the issue of steel prices in the country. Once left alone, market dynamics will automatically ensure price corrections and determine the optimum price of steel.

- The Indian steel Industry is amongst the least protected in the world. While developed countries have put numerous tariff and non-tariff barriers on steel exports from the country, the domestic industry is exposed to cheaper imports from competing nations. As in case of other important industries, the Government should give reasonable levels of protection to the domestic steel industry, which is just starting to get back on its feet. Industry should be allowed to have a fair return on investment and contribute to the overall health of the Indian manufacturing segment. The steel industry has made a capital investment of over Rs 90, 00 Billion. A recent study has concluded that given the large exposure that banks and financial institutions have to the steel industry, a healthy steel sector is in the interest of the economy. The Steel industry still not an obvious choice for investors a recent study suggests that any new projects with target price below $270/MT will be economically unattractive.
- Today, Indian producers employ world-class standards of technology. There is growing acceptability for Indian steel the in the international market. Despite this however India's share in world trade steel is a miniscule 2%. Given the capabilities of the Indian steel industry there is tremendous scope to increase this share further. While the steel industry will continue servicing the domestic demand there is a lot of untapped export potential with the industry. The Government, in line with EXIM policy 2002-07, should take steps to make Indian exports more competitive.

REGULATORY PERSPECTIVE AND GOVERNMENT POLICY UPDATE

Government policies

Government's role is crucial

47. The domestic prices are at a heavy discount to Chinese and US prices (landed cost of around Rs 34 500-35 000 per tonne), although they are at par with the landed cost of CIS material (as CIS material is of inferior quality) and raw material cost. But the softening of global prices and the pressures from the government will prevent any significant increase in domestic steel prices. The government has, in fact, been playing a very crucial role in determining domestic steel prices; although it does not directly decide the prices and regulate the industry, it is acting as an enabler of prices.

48. Since steel is an essential commodity for any country, as it is used in industries like construction, automobiles, and engineering, governments across the globe protect their steel industry. The Indian government had also adopted a high import duty structure to protect the domestic steel industry during periods when international prices are low. But, as steel prices began to heat up, pressure mounted on the government to keep the prices under check to avoid high inflation.

New steel policy

49. In order to meet increasing domestic and international demand, the Government has formulated a draft national steel policy, which targets a production of over 110 million tonnes by the year 2020. The basic objective of the National Steel Policy is to create enabling conditions for a globally integrated Indian Steel Industry and the expansion of its production base adequately in response to the anticipated increase in domestic and overseas demand in the coming decade.

50. Production capacities of different steel plants including those in private sector are being increased and attempts are being made to revive sick and closed units. Accepting the challenge of international competition in steel production, Steel Authority of India has prepared a corporate plan 2012, which envisages strategic goals for the company. The Ministry of Steel has approved merger of Indian Iron and Steel Company (IISCO) with SAIL.

51. It also plans to address other issues to support the growth of the industry.

- Adequate infrastructure to be developed for mines in terms of road and rail network.
- Enhance capacity of existing ports & opening of new ports on the east coast. Efforts to be made to allocate to steel companies berths, storage space, etc in ports and enhancing loading/unloading/handling capacities.
- Ensuring availability of rail wagons for moving planned quantity of inputs/outputs.
- Looking into the possibilities of owning wagons/railway lines/ railway sidings, wherever necessary.
- Enhancing investment and promoting long-term tie-up in infrastructure

52. The economic reforms initiated by the Government since 1991 have abolished licensing requirement for capacity creation in the industrial sector. Price and distribution controls have been removed from January 1992, with a view to making the steel industry efficient and competitive.

53. The steel industry has been removed from the list of industries reserved for the public sector. Automatic approval of foreign equity investment up to 100% is now available. Restrictions on import and export of steel have been removed and import duty rates have been reduced drastically. The Advance Licensing Scheme under the Export-Import Policy allows duty free import of raw materials for exports.

Impact of duties and tariffs

A. Duty on alloy steel products (including stainless steel) has been reduced from 15% to 10%. This will lower the landed cost of stainless steel HR coils by Rs 6 500-7 000 per tonne. However, domestic prices will not drop, as they will still be at a significant discount to landed cost.

B. The import duty on zinc has been cut from 15 per cent to 10 per cent. This is likely to have a marginally positive impact on GP/GC producers. We estimate that GP/GC costs will drop by Rs 175-190 per tonne.

C. A 10% drop (from 15% to 5%) in the import duty on coking coal that has an ash content of more than 12% will not have a significant impact, since the industry largely uses coking coal with less than 12% ash content. The 5% (from 15% to 10%) decline in the import duty on refractories and Ferro alloys will have only a marginally positive impact on the industry.

D. The excise duty on steel products has been increased from 12 per cent to 16%, implying a duty increase of Rs 1 000-1 200 per tonne. We expect domestic flat product manufacturers to pass on the incremental duty since most buyers claim credit on excise duty paid on inputs. However, in case of long products or galvanized sheets used for roofing, the duty increases will be difficult to pass on to consumers. Long products account for 45-47% of finished steel consumption and GP/GC sheets account for 5-6%. RINL, JSPL (for long products), Tisco and SAIL (for long products and GP/GC) and other GP/GC players have been adversely affected. Jisco will be the least affected owing to the higher share of exports in its GP/GC sales.

Tariffs effect on major players in steel

Company name		**Impact**	**Impact factors**
Bhushan Steel & Strips Ltd.		Negative	**B, C, D**
Essar Steel Ltd.		Neutral	**C, D**
Ispat Industries Ltd.		Negative	**B, C, D**
Jindal Stainless Ltd.		Neutral	**A, C, D**
JISCO/JVSL		Neutral	**B, C, D**
Steel Authority of India Ltd.		Negative	**B, C, D**
Tata Iron & Steel Co. Ltd.		Negative	**B, C, D**

Source: Parijat Consulting.

FUTURE OUTLOOK

Growth projection and outlook analysis

54. Steel prices are on a strong footing despite being at multi-year highs and showing some signs of weakness. India steel makers with strong raw materials linkage look attractive, in our view. For them, the cost-push is likely to be minimal, even as they enjoy the steel price strength provided by the raw materials cost surge that is affecting a majority of producers across the globe. Furthermore, the steel companies in our coverage universe have been quick off the block as far as volume ramp up is concerned and hence should, benefit from the expanding steel demand in the country.

GP/GC sheets: Growth rate forecast — Table 24

(per cent)	Share[1]	2005-10			
		Pessimistic		Most likely	
		Growth rate	Weighted growth	Growth rate	Weighted growth
Roofing/Panelling/Fencing/Shutters	56.0	3.5	2.0	5.0	2.8
Trunk/Drum/Tub/Tank/Can/Container/Bucket	10.0	-6.0	-0.6	-5.0	-0.5
White goods	13.0	3.0	0.4	4.0	0.5
Engineering/fabrication	10.0	6.0	0.6	8.0	0.8
Furniture	5.0	4.0	0.2	6.0	0.3
Agricultural implements	2.0	-10.0	-0.2	0.0	0.0
Grain storage bins	2.0	1.0	0.0	2.0	0.0
Auto/Bus body	2.0	4.0	0.1	7.0	0.1
Total	**100.0**	-	**2.5**	-	**4.1**

[1] The sector's share in total GP/GC sheets consumption

Source: SSERC Handbook and Industry

CR flats: Growth rate forecast — Table 25

(per cent)	Share[1]	2005-10			
		Pessimistic		Most likely	
		Growth rate	Weighted growth	Growth rate	Weighted growth
Coating industry	25	2.5	0.6	4.1	1.0
Coating exports	11	8.0	0.9	10.0	1.1
Automobiles	22	8.0	1.8	12.0	2.7
General engineering industry	9	3.5	0.3	6.6	0.6
Cycle industry	8	-2.0	-0.2	1.0	0.1
Drums/Barrels & containers	7	-6.0	-0.4	-5.0	-0.4
Tube makers	7	8.5	0.6	13.6	1.0
Household goods and furnitures	5	5.0	0.3	7.0	0.4
White goods manufacturers	5	3.0	0.2	4.0	0.2
Total	**100.0**	-	**4.0**	-	**6.7**

[1] The sector's share in total CR flats consumption

HR coils: Growth rate forecast — Table 26

(per cent)	Share[1]	2005-10			
		Pessimistic		Most likely	
		Growth rate	Weighted growth	Growth rate	Weighted growth
CR units and galvanised sector	39.0	4.0	1.6	6.7	2.6
Pipes and tubes	32.5	7.0	2.3	10.0	3.3
Industrial machinery and equipment	8.2	5.0	0.4	6.0	0.5
Construction	5.8	6.5	0.4	7.6	0.4
Engineering	4.5	6.5	0.3	7.6	0.3
LPG cylinders	1.4	-2.0	0.0	0.0	0.0
Automobiles	4.0	8.0	0.3	12.0	0.5
Government	1.3	5.5	0.1	6.0	0.1
Railways	1.0	-2.0	0.0	2.0	0.0
Agricutural implements	0.3	2.0	0.0	4.0	0.0
Others	2.0	4.0	0.1	6.0	0.1
Total	**100.0**	-	**5.4**	-	**7.8**

[1] The sector's share in total HR coils consumption

Steel products: Forecasted growth in apparent consumption — Table 28

(per cent)	2005-06	2006-07	2007-08	2008-09	2009-10
Longs (Regression with GDP method)	**6.72**	**5.45**	**5.54**	**6.46**	**6.86**
Flats (End-use method; most likely)	**7.6**	**7.6**	**7.6**	**7.6**	**7.6**
-GP/GC sheets	4.1	4.1	4.1	4.1	4.1
- CR flats	6.7	6.7	6.7	6.7	6.7
- HR coils/skelp/sheets	7.8	7.8	7.8	7.8	7.8
Total finished steel	**7.8**	**6.5**	**6.5**	**7.0**	**7.2**

Source: CRIS INFAC

Steel products: Forecasted apparent consumption — Table 29

('000 tonnes)	2005-06	2006-07	2007-08	2008-09	2009-10
Longs (Regression with GDP method)					
- Bars and rods	12,214	12,879	13,593	14,471	15,465
- Structurals	3,084	3,252	3,432	3,654	3,904
- Railway materials	1,014	1,069	1,129	1,202	1,284
Flats (End-use method; most likely)					
- HR Plates	3,081	3,284	3,500	3,730	3,974
- HR Coils	11,930	12,865	13,873	14,960	16,132
- CR coils	6,256	6,672	7,117	7,591	8,096
- GP/GC	2,068	2,153	2,241	2,333	2,429
Total finished steel	**31,323**	**33,349**	**35,526**	**38,016**	**40,759**

Source: CRIS INFAC

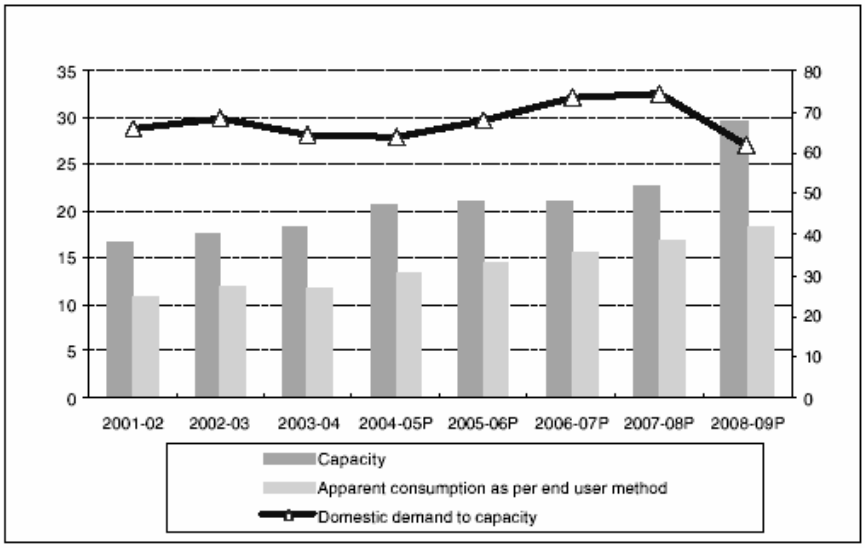
55. Domestic demand supply dynamics look quite strong from here, with auto, infrastructure, engineering and construction likely to give a fillip to demand growth even as supply growth is likely to come with a lag.

56. Regarding China, we feel that recent capacity additions and the government's attempts to cool off fixed asset investments (which can curtail demand growth in the country) are causes of concern, though we also believe that China dynamics are unlikely to lead to steel price slumps in global steel markets. Supply side constraints are emerging in the shape of export curbs by the Chinese government. Reducing export incentives can affect the ability of small semi-finished steel players to sustain their present level of production. We feel that in the coming 18 months, those Indian companies that are insulated against raw materials costs and can display production volume growth are likely to surprise the street with their earnings momentum.

Domestic demand capacity ratio

57. The domestic demand-capacity ratio will remain steady in 2005-06 and, thereafter, improve slightly in 2006-07 and 2007-08. Propelled by buoyant demand growth, the domestic demand-capacity ratio is likely to improve to 75% by 2007- 08. Thus, with exports steady at around 4.6 million tonnes, the domestic industry can maintain operating rates at around 95 per cent. Subsequently, the domestic demand to capacity ratio may drop appreciably to 62-63% in 2008-09 due to a major capacity addition by TISCO (Tata Steel). In effect, therefore, the stability in fundamentals till 2008-09 will support steady domestic prices. SAIL has also announced an aggressive capex plan to expand its hot metal capacity to 20 million tonnes per annum by 2012 as against its current capacity of around 13 million tonnes per annum. Although the details of the same are not completely announced, we expect significant addition to domestic flat steel capacity by 2009-10, resulting in a further deterioration in the industry fundamentals.

Domestic demand-capacity ratio Figure 2



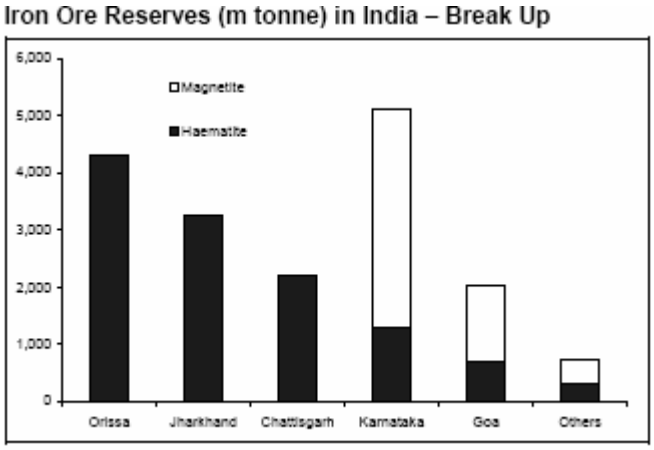
Source: CRIS INFAC

Indian steel - Should emerge from the current weakness

58. As the specter of imports from CIS countries and Western Europe has arisen in the past six weeks the Indian market is looking slightly sluggish (more so in longs products). However, as the Western markets gain in strength as inventories are depleted, steel consumers should return to domestic steel suppliers with new orders. Also, the regulatory threat to domestic steel prices has, we believe, receded with a sharp reduction in import duty rates (from 25% an year ago to 5% now). In fact, the government has ruled out any regulatory mechanism for steel prices. After the domestic steel makers' hefty price hikes (ranging between 8 and 14%) in early April, prices were reduced by 2-8% in early June. However, prices should again start looking up by the end of 3QCY05, in our view. After a solid 4QFY05 (especially the month of March), the domestic steel market eased in April. Even as production surged by 11.4% YoY, in anticipation of a decline in prices, consumers started postponing their purchases, which actually led to a bulging-up of producer level inventories. In April 2005 producer level inventories went up by 76% to 829 000 ton. Furthermore, the cost of imports (rather than quantum of imports) has also taken a toll on domestic prices as the gap between the landed cost of imports and domestic prices has widened. In our view, after three to four months of a de-stocking phase domestic consumers should come back to the market as import prices get some support and expectations regarding further slippages are diluted.

Lure of Iron ore

59. India has one of the largest iron ore reserves in the world, at about 17 billion tonnes. A large part of this is high-grade Haematite, with an iron content of more than 63%. We believe that this is a major reason why the country is emerging as a prime destination of fresh steel capacity addition. The reserves are largely located in the states of Orissa, Jharkhand and Chattisgarh in the eastern and central parts of the country.



Source: Ministry of Mines, Ministry of Steel, IBM, Morgan Stanley estimates.

60. At present only the top two Indian steel makers (SAIL and Tata Steel) have captive iron ore mines, while the others have to purchase ore from domestic iron ore miners. In the past two years many more steel makers have applied for mine leases. While the government is speeding up the lease approval process the states of Orissa, Jharkhand and Chattisgarh have policies that stipulate steel makers cannot export iron ore from the state – the iron ore miner has to process the raw material into steel in that state. For example, the state of Orissa will consider granting mining leases only after 25% of the proposed steel plant expenditure has been incurred. This is why we feel that many proposed steel projects will not see the light of the day. We feel that in states like Orissa and Jharkhand, which have lagged in investments so far, the governments will endeavour to tap their large mineral resources for employment generation. However, we also feel that this approach is likely to accentuate the situation where eastern India is the primary supplier of steel to the rest of the country. Indeed, many of the new steel plants may find it prudent to export their output rather than transfer it to other end of the country, thus circumventing the already stretched road/rail route.

61. However, low ash coking coal is not available in India, which renders the steel makers exposed to the vagaries of coking coal cycle. Hence, to reduce the exposure to reductants the integrated steel plants need to have in-house coke producing facilities. Against a backdrop of abundant iron ore and thermal coal, and a shortage of coking coal, thermal coal-based sponge iron (which requires iron ore and thermal coal as raw materials) is coming up fast as an input for steel making in India. In fact, sponge iron usage is becoming more lucrative not only for the Electric Arc Furnace (EAF) route based steel makers but also for Blast Furnace-Basic Oxygen Furnace (BF-BOF) based players. We believe companies that manage to improvise their processes to charge (or increase the charge of) sponge iron at both the iron-making and steel-making stage are likely to extract the highest benefits from the availability of iron ore reserves in India. Tisco stands out among the larger steel makers in India in this respect since it has managed to achieve increased productivity and has reduced coking coal costs by using sponge iron in its iron making and steel making processes. Recently SAIL has also unveiled plans to build sponge iron kilns to reduce its coking coal cost.

Short-term Outlook: steady growth in steel demand until 2006

62. The world economy is expected to grow - on an average - at 3% in 2006 and 2007. This will drive steel demand upwards, globally, over the next year. The global demand for steel is expected to grow by about 3% in CY 2005, followed by nearly 5% in 2006. The growth in China is expected to slow down - from over 17% in 2004 to 10% in 2005 and to about 8.3% in 2006. However, we expect a recovery in 2006, particularly in the rest of the world, excluding China. After a stagnant growth in 2005, regions other than China are expected to grow at nearly 4% in 2006.

India: low per-capita consumption, attractive growth prospects

63. Although India is the eighth largest consumer of steel globally, its per capita consumption at 29 kg is amongst the lowest in the world. The demand-supply scenario in India remains fairly robust. Steel demand in India over the last ten years (FY95-FY05) grew at a CAGR of 6.3%. The production of finished steel grew at a much faster pace of about 8% during the same period.

Infrastructure and construction: key drivers

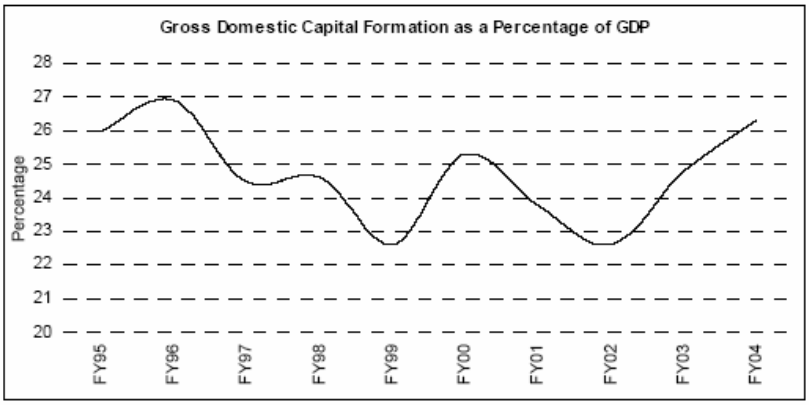
64. The ratio of gross capital formation to GDP for India is currently low compared to China. India's ratio is about 26% as against 42% for China. However, this ratio has been rising over the last three years, which can really propel demand for steel. Moreover, regional disparities in India continue to remain a big irritant, stalling growth prospects. The government has plans to invest massive funds for the development of core infrastructure, which augurs well for the steel sector. Roads, ports, power and housing account for 40% of the steel demand in India. The government is also planning to increase generating capacities in the country's power sector by over 100,000 MW over the next 7 years. This will entail a capital expenditure of nearly Rs 8 000 billion over the same period. Over the next two years, the Central Government is expected to spend about Rs 200 billion on roads. We believe the Golden Quadrilateral project and development of roads in the Central Sector will provide a big boost to the steel sector.

Automobile/White goods sectors to further drive growth

65. Demand for passenger vehicles has grown at a rate of 11% CAGR during 1996-2005. In FY05, growth in this segment was much higher at 18%. On the back of rising income levels, a thriving middle class population and a soft interest rate regime, we expect the demand for passenger cars to grow at 12-15% over the next 2 years. Auto and White Goods account for 11% of the steel demand.

Low but rising gross domestic capital formation

66. The gross capital formation to GDP ratio for India is currently low compared to China. It is about 26% for India as against 45% for China.

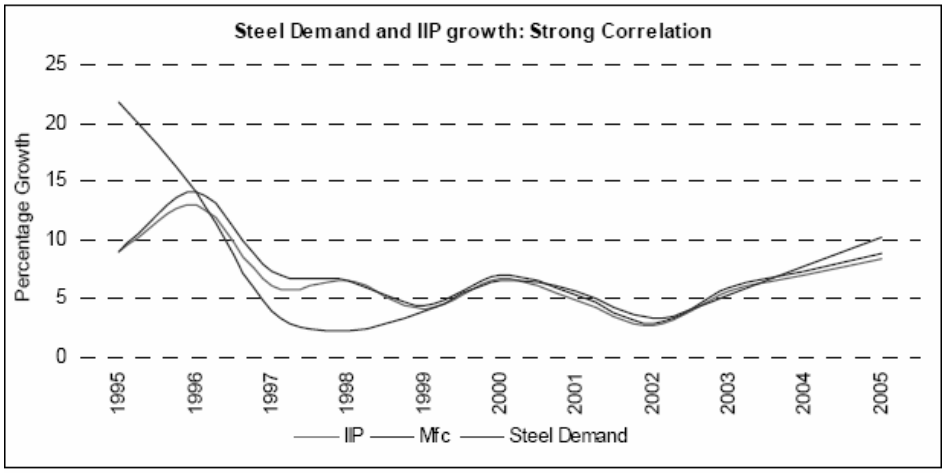


Source: RBI

67. However, this ratio has been rising over the last 3 years, which can really propel demand for steel. Massive investments on the anvil to develop roads, ports and power. The Indian economy is in the midst of an investment boom. A massive need exists for developing core infrastructure such as roads, ports, telecommunications and power. Regional disparities in India continue to be a big irritant, stalling growth prospects. The government is planning massive investments to develop the core infrastructure, which augurs well for the steel sector. Power, Ports, Roads and Housing account for 40% of the steel consumption.

Industrial production and manufacturing sector drive growth

68. The demand for steel is more a function of industrial production than GDP. This is more so as India remains a service-led economy wherein services account for over 50% of the GDP.



Source: RBI & JPC

69. The demand for steel is strongly co-related to industrial growth, particularly the manufacturing sector. The growth in steel consumption has been led by the growth in industrial production, and the manufacturing sector in particular. Industrial production over the last 10 years grew at a compounded rate of 6.5%, whereas the manufacturing sector grew at about 7% during the same period. The demand for steel has grown in tandem at over 6% during the same period. Globally, the construction and automobile sectors account for nearly 70% of the steel demand. The construction industry in India has been growing at a

feverish pace of 6% CAGR during FY95-05. The growth in the last decade (1985-95) was slower, though, at 5% CAGR.

The principal drivers

Power: massive investments on the cards

70. The government plans to increase power-generating capacities by over 100 000 MW over the next 7 years. The cumulative power generating capacities will be about 223 000 MW. This will entail a capital expenditure of nearly Rs 8 000 billion over the next seven years.

Capacity addition (all figures in MW)	2002-07	2007-12	
	X Plan	XI Plan	Total
Central Sector			
Ministry of Power	23000	23500	46500
Ministry of Coal	210	1500	1710
Department of Atomic Energy	1220	5160	6380
Ministry of Non-Conventional Energy Sources	4055	6625	10680
Total Central Sector	28485	36785	65270
Total State Sector	8300	10600	18900
Total Private Sector	9400	13500	22900
Overall Capacity Addition (approx.)	**46000**	**61000**	**107000**

Source: Ministry of Power, Govt. of India

71. This will have a massive impact on steel demand. Machinery and equipments account for 13% of the total demand for steel.

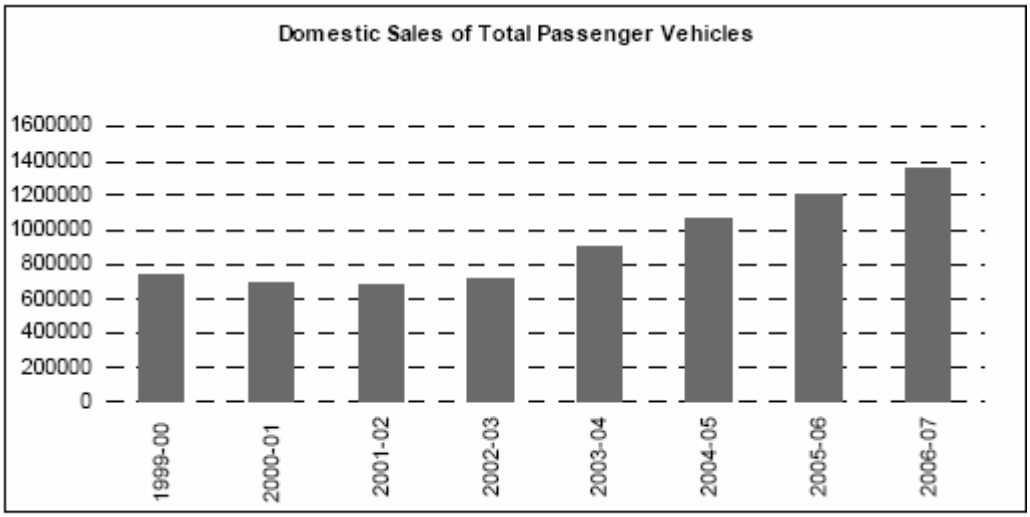
Roads

72. As National Highways comprise about 2% of the total road length in the country and yet carry over 40% of total traffic, the implementation of NHDP - comprising of the Golden Quadrilateral and the North-South and East-West Corridors is of utmost importance. Progress here has been substantial. The Golden Quadrilateral is 86% complete but the North-South and East-West corridors (NS-EW) are only about 11% complete. The total costs of both these projects are about Rs.650 billion. The capital expenditure on NS-EW Corridors should be completed over the next two years.

	NHDP				Port Connectivity	Others	Total by NHAI
	GQ	NS - EW	NHDP Phase III A	NHDP-Total			
Total Length (km)	5,846	7,300*	4,015	17,161	356	801	18,318
Already 4-Laned (km)	5,000	784	-	5,784	99	287	6,170
Under Implementation (Km.)	846	3,691**	926	5,463	251	291	6,005
Contracts Under Implementation (No.)	49	45	2	96	7	6	109
Balance length for award (km)	-	2,722	3,089	5,811	7	223	7,016

Source:NHAI

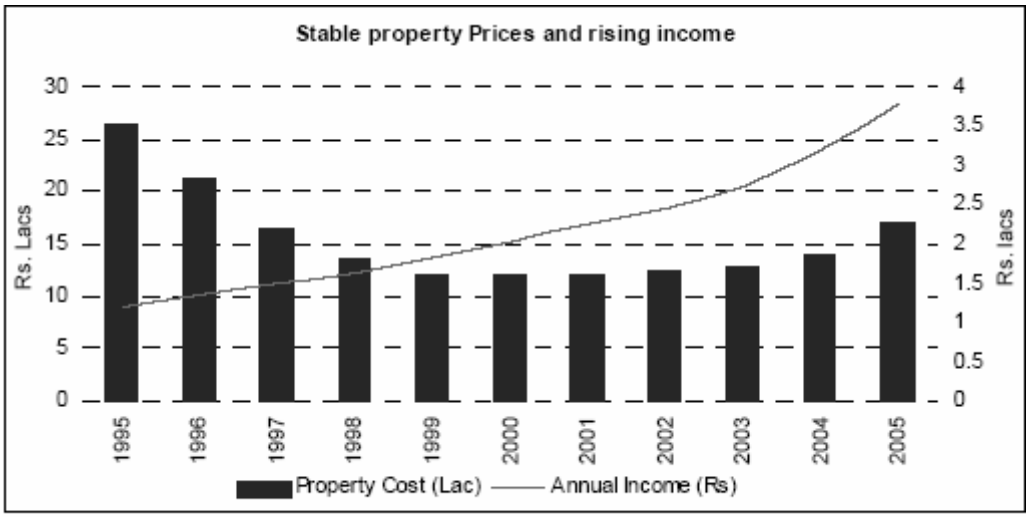
73. On the other hand, the 10th Plan (2002-07) has an outlay of Rs.595 billion for roads in the Central Sector. The expenditure until FY05 has been about Rs.383 billion. Over the next two years, the Central Government is expected to spend about Rs.200 billion on roads. We believe the Golden Quadrilateral project and development of roads in the Central Sector will provide a big boost to the steel sector. Automobile sector: growing at a feverish pace Demographic changes, rising per capita income and attractive financing schemes have been the key factors for the automobile sector's growth. This in turn, has been the key driver for demand in the steel sector. A typical car of 1,000 kg requires 650 kg of steel whereas two wheelers of about 100 kg require 60kg of steel. Demand for passenger vehicles has grown at a rate of 11% CAGR during 1996-2005. In FY05, growth was much higher at 18%. On the back of rising income levels, a thriving middle class population and a soft interest rate regime, we expect the demand for passenger cars to grow at 12-15% over the next two years.



Source: SIAM

Housing shortages to prop up demand for steel

74. The mortgage market is another opportunity for the steel sector. It accounts for only 3% of the GDP in India whereas in the US, its share is 51% of GDP. Currently, there exists a shortage of 19.4 million housing units.



Source: HDFC

75. A shortage of 12.7 million units is more pronounced in rural areas vis-à-vis a shortage of 6.7 million units in urban centres. Stable property prices, low interest rates and rising income levels are expected to drive the demand for housing and therefore, demand for steel.

Duties cut and assumed forecast

Source: Ministry of steel, Cris Infac., Morgan Stanley

76. This has made Indian steel makers' earnings more prone to global developments on one hand but at the same time this has buttressed the quality of earnings for the Indian steel companies.

Steel products: Assumed exports — Table 9

('000 tonnes)	2005-06	2006-07	2007-08	2008-09	2009-10
Bars and rods	500.00	500.00	500.00	500.00	500.00
Structurals	30.00	30.00	30.00	30.00	30.00
Railway materials	0.00	0.00	0.00	0.00	0.00
Longs	**530.00**	**530.00**	**530.00**	**530.00**	**530.00**
GP/GC sheets	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00
CR flats	800.00	800.00	800.00	800.00	800.00
HR coils/skelp/sheets	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00
HR flats	**4,500.00**	**4,500.00**	**4,500.00**	**4,500.00**	**4,500.00**
Total finished steel	5,030.00	5,030.00	5,030.00	5,030.00	5,030.00

E: Estimate

Note

Figures for CR flats, HR coils and HR flats include exports of downstream products.

Source: CRIS INFAC

Steel products: Assumed imports — Table 10

('000 tonnes)	2005-06	2006-07	2007-08	2008-09	2009-10
Bars and rods	102.86	102.86	102.86	102.86	102.86
Structurals	51.43	51.43	51.43	51.43	51.43
Railway materials	0.00	0.00	0.00	0.00	0.00
Longs	**154.29**	**154.29**	**154.29**	**154.29**	**154.29**
GP/GC sheets	85.00	85.00	85.00	85.00	85.00
CR flats	350.00	350.00	350.00	350.00	350.00
HR coils/skelp/sheets	900.00	900.00	900.00	900.00	900.00
HR flats	**1,335.00**	**1,335.00**	**1,335.00**	**1,335.00**	**1,335.00**
Total finished steel	**1,489.29**	**1,489.29**	**1,489.29**	**1,489.29**	**1,489.29**

E: Estimate

Note

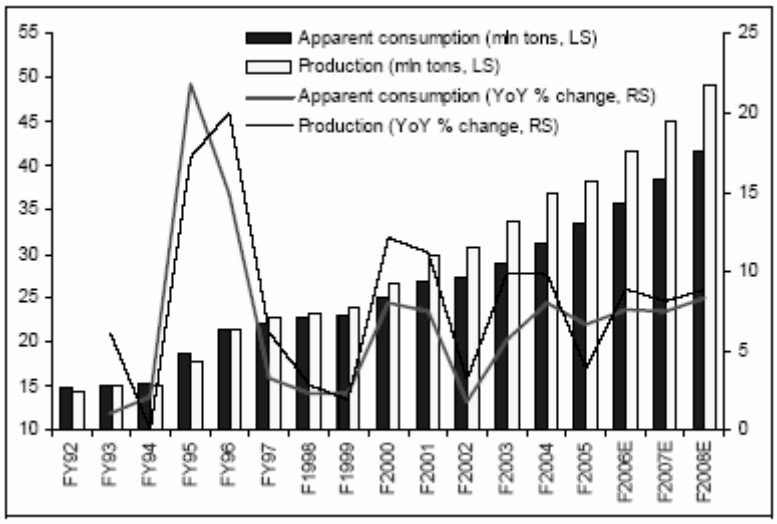
Figures for CR flats, HR coils and HR flats include imports of downstream products.

Source: CRIS INFAC

The Pie gets bigger in India

77. The Central government is targeting to reach 60 mn tonnes of steel consumption in India by 2012, which implies a CAGR of 8.8%. Though we project a take off at a lower rate we believe that in the latter part of the period the demand growth should pick up further.

Indian Steel Market: Towards Inflexion Point



Source: JPC, E = Morgan Stanley Research Estimates

Advantage India

- Indian market - big demand upside:
  - Size only one-tenth of China.
  - Infrastructure investment and demographics to drive future growth.

- Translating into advantage for domestic integrated producers – Tata Steel & SAIL:
  - Resource rich and globally cost competitive.
  - Captive iron ore.
  - Captive coal block (though poor quality - often require blending with imported coal.

- Restructuring has enhanced efficiency gains.
- Adequate margin of safety on local pricing:
  - Import duty at 5% is lowest in its category and comparable to ASEAN tariff levels.
  - Local prices at a discount to landed prices.

- Greenfield economics: Favourable for producers with captive iron ore:
- Investment Ideas: Tata Steel and SAIL – Outperformers.
  - Strong earnings momentum, Undervalued at current levels.

Even assuming worst case price scenario, Indian players, being globally cost competitive and integrated producers of steel, are likely to outperform

ISSUES AND CHALLENGES

Current global issues and implication on Indian industry

Issues

Issue 1

78. Towards the end of 2004, steel prices had reached record level, mainly push by the strong demand from China. In 2005 several reasons have led to the correction of prices by up 10 25%.

- High inventory.
- Increasing production.
- Raw materials.
- Consolidation.
- Production cuts.

79. The current prices level is still well beyond early 2003 levels, but 20-25% lower than the year ago. Currently it is expected a more stabilize environment in the near future and a slight rise in the price.

Issue 2

80. Chinese prices are still sinking due to the over supply situation. Falling steel prices since April in china caused by the weak demand and dramatic oversupply. Therefore the overall steel prices decline decelerated from July on, steel prices are still sinking as the additional capacity has come into operation during the first half in 2005.when additional capacity will come online in 2006, the oversupply situation will become more dramatic.

81. But still there is a hope that the governmental measures for the consolidation for the industry will force some suppliers to stop or reduce production.

Issue 3

82. Steel companies raise prices for the fourth quarter while the future expectations are quite contradictory

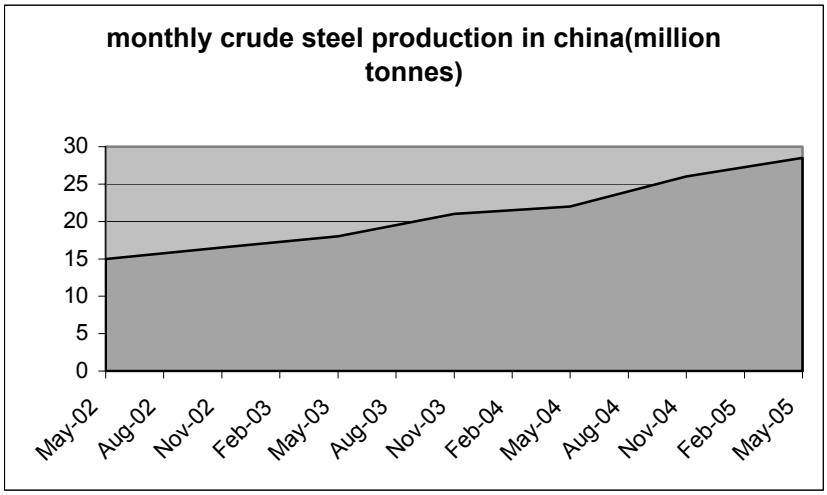
- ThyssenKrupp plans to hike steel prices for the automotive industry by up to 100 euros per ton.
- Austria's biggest steel producers Voestalpine increase prices for long and flat products by about 15 to 20 euros per ton.

Issue 4

83. World demand for steel is still increasing from 971million tonnes in 2004 to 998 million tonnes in 2005 and the estimated demand in 2006 can be 1053 million tonnes. However the major steel consumers are chine, Asia pacific and Europe.

Issue 5

84. But production shows higher growth rates due to the massive oversupply from china



Issue 6

85. China will probably become the net exporter of steel 2006

- Will the gap between production and consumption in china widened from 2002, in 2004 production increased and led to self sufficiency rate with steel of 98.5% in the first 8 months of 2005.
- Probably, consumption and production may equal at the end of the year.
- From 2006, china is expected to become a net exporter of steel products, putting pressure on the international markets.

Issue 7

- Steel consumption and production are rising both mainly driven from china. So far this year china has consumed about a third of world output (730 million tons) and its demand is rising at an annual rate of 20%.
- But china's own production is rising faster, by about 30% a year. In the coming years there will be massive excess capacity in china.
- The growth rate of iron and steel output is much faster than its demand.

Issue 8

86. Lower inventories and consolidation might lead to higher prices

- Asia's steel inventories, boosted by supply glut in china, will probably ease as early as the end of the year and help steel prices rebound.
- More acquisitions in the steel industry are inevitable as consumption in china and India soars and the world's leading producers look for ways to spend record profits. Arcelor is prepared to spend at least $3.5 bn in the next two years on steel businesses to facilitate consolidation in the sector.

Issue 9

87. Due to the high steel production, demand for raw materials is increasing and thus leading to prices hike.

- The recent rise in raw material prices, e.g. for iron ore, was higher than the previously expected.
- Iron ore production rose by 30% in china in the first 8 months in 2005.
- Scrap price volatility will lead to fluctuations of steel prices, too.
- Scrap prices will fall to the end of 2005 and rebound during the 1st half of 2006.

Conclusion

88. To the end of 2005, prices will increase slightly. The overall trend might stay in the 1st quarter of 2006.

Raw materials

- Costs for raw materials have risen sharply in 2005 and are said to rise in 2006, too.
- Storms like Katrina cutted steel mill capacity and delivery of hydrogen, but affect the situation is only short term.
- Prices are going to stay high.

China

- Production increases by 15% in 2006 and leads to further oversupply of several steel products.
- Demand is still growing but will not keep up with supply. China will remain a net exporter
- Consolidation is going to start and might reduce capacities from 2006.

Competitors

- Strategy of production cuts might not be enough to counter Chinese oversupply.
- Consolidation is taking place with expansion and acquisition strategies of biggest companies. Strategic pricing will become easier.

In the long run

- Demand from china is going to remain high and grow steadily.
- Concentration in the sector and high price levels
- Steel and raw materials will stay expensive for the next few years.

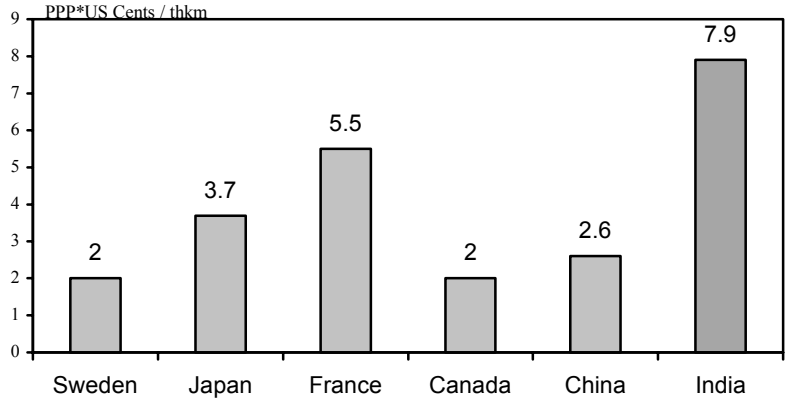
89. Steel prices have reached have already reached their lowest potential but the environment is still very unstable. Slight changes might lead further price reductions. For the fourth quarter beginning of 2006, however, the situation should be stable enough and allow prices to increase a few percent.

Key India centric industry constraints

- Shortage of quality raw materials
- Inadequate 'enabling' infrastructure
- High cost of basic inputs like power and tariff
- High cost of capital
- High tariff/non-tariff barriers imposed by on Indian exports by developed nations

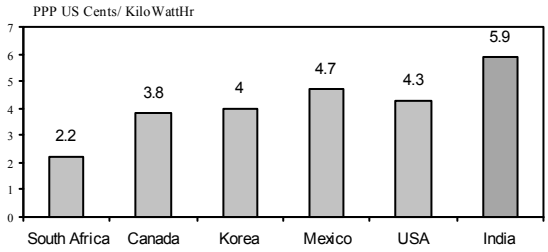
Steel companies in India operate in an adverse factor cost scenario

1. Indian railways: Comparatively high tariffs



*Purchasing power parity

2. Power cost comparison



3. Inefficiency costs in Indian ports: Based on total employees, traffic, productivity/man, output per day, container moves per hour, idle time at berth, India is incurring Rs 400 Billion extra compared to world average on Exim trade

Recommendations

- Develop raw material resources to ensure adequate supply of good quality raw materials.
- Ensure optimal exploitation of iron ore mines.
- Improve infrastructure support to the industry.
- Make available cheaper capital to fund capacity additions.
- Let market forces determine the price of steel.
- Resumption of DEPB to enable Indian steel exports compete in the global market.
- Maintain the current import duty at 15%.
- Maintain current excise duty on steel to make it affordable to end users.
- Discourage the imports of defectives, which are affecting the quality of the domestic steel industry.

Backward integration is the key to leadership

90. With steel prices set to decline and raw material prices still marching towards their peak, gaining control over raw material sources is the key to profits for any steel manufacturer. The players' competitive positions will be decided by how much they can maximize their realizations using value addition, and minimize their costs using backward integration. Players are focusing on obtaining backward linkages, so as to eliminate the risk of non-availability of inputs, and minimize the impact of an increase in their prices. Most of the players are eyeing strategic stakes in coalmines abroad or in Indian iron ore mines.

91. Thus, the key success factors for any steel company would be:

- Proximity and access to raw materials.
- Value addition and product range.
- Proximity to markets.
- Financial costs.

THE PRINCIPAL PLAYERS - A COMPARATIVE PERSPECTIVE

Tata steel

Background

92. Established in 1907, Tata Steel is Asia's first and India's largest integrated private sector steel company.

93. With its captive iron ore and coal mines and one of the world's most modern steel making and finishing facilities at Jamshedpur in eastern India, Which includes a state-of- the art Cold Rolling Mill complex, Tata Steel is among the lowest cost producer of steel in the world.

94. The 4 million tonne Jamshedpur plant, which produces both flat and long products, is undergoing a million tonne capacity expansion to be completed by September 2005. The company intends to raise its capacity to 15 million tonnes per annum by 2010 through organic growth and acquisitions. The Jamshedpur capacity will produce 7.4 million tonnes and the balance capacity will be put up or acquired elsewhere in India and overseas. Tata Steel recently announced its first major overseas investment in NatSteel, Singapore, which will give it a manufacturing footprint in six countries in the Asia Pacific region and China.

95. Tata Steel is also exploring opportunities in the ferro-chrome and titanium businesses in South Africa and the southern Indian state of Tamil Nadu, India respectively.

96. Tata Steel's relentless quest for excellence through initiatives like ASPIRE, which combines TPM, Six Sigma, Total Operational Performance, Suggestion Management and Quality Circles, has reaped rich benefits. The company has been conferred the prime Minister's Trophy for the Best Integrated Steel Plant five times from the Indian Ministry of Steel. It was the first Tata Company to win the JRD Quality Value Award, categorising its operations as "world class" under the Tata Business Excellence Model. It has been ranked among the top four world-class steel companies by World Steel Dynamics, USA, for the past four years. Teleos, an independent Knowledge Management company of South Korea, also awarded Asia’s Most Admired Knowledge Enterprise Award-2003 it.

Key highlights

Access to raw material, a sustainable competitive advantage: We believe that access to raw material is a critical factor in determining a steel producer’s long-term profitability. Tisco’s high degree of integration gives it a sustainable competitive advantage over its peers and will boost its bottomline.

Impressive growth in profitability: We believe that firm steel prices, high-volume growth and least exposure to cost-push among peers, will result in impressive growth in its profitability. We expect Tisco’s operating profit to increase by 80% in FY05 and 17% in FY06.

Reaching global heights: Tisco’s focus on value-added products, long-term relationships with customers and continuous technology upgradation has made it a world-class steel producer. With the acquisition of Nat Steel, the company has transformed itself from a single-location producer to a multi-location producer.

We believe that once its growth plan is implemented, Tisco would join the league of the likes of Posco (but would enjoy a better competitive positioning due to its captive raw material sources) and this will result in a re-rating of the stock.

Tisco is one of the most efficient steel producers in the world. It has made significant investments to enrich its product mix and build its brand over the years, which helps it to minimize the impact of volatile steel prices. Shift in contract mix, in favour of long-term contracts, also ensures that its current profitability levels are sustainable.

Tops World Steel Dynamics' ranking chart
In its latest ranking chart, World Steel Dynamics has identified 12 companies/groups as world-class steel makers on the basis of critical factors that ensure their long-term profitability. Tisco tops this list of leading producers. This ranking is based on factors like raw material supply, low operating costs, a special company culture, good profitability, expansion prospects, and location in a country in which steel demand should grow substantially in the future.

TISCO ON TOP OF WORLD STEEL DYNAMICS' RANKING CHART

COMPANY	RANKING	SCORE
Tisco	1	131
Usinor	2	129
Posco	3	127
CSN	4	123
Baosteel	5	121
China Steel	6	119
Gerdau	7	118
Nucor	8	116
Car-Tech	9	112
Nippon Steel	10	111
Severstal	10	111
Dofasco	11	109

Source: World Steel Dynamics

Zero impact of rising input prices
Cost-push will be a major concern for steel producers in the domestic as well as the global markets. With limited scope for increase in steel prices (due to political reasons, in the domestic market), and its long-term negative impact on world steel demand, we believe that margins for non-integrated steel producers will come under pressure.

The degree of cost-push among various producers will depend on their ability to source critical raw material, i.e. iron ore, coal and coke. We believe that Tisco is best placed in the industry with captive iron ore, which meets its entire requirement. Over 60% of its coking coal requirement is also met by captive sources. The company will experience a cost-push because of an increase in imported coking coal cost (40% of its total coking coal requirement is met through import of coking coal), but savings in other cost heads will offset this. Tisco's long-term contract prices (FOB) for imported coking coal may increase by 100% in FY06, which will result in cost-push of Rs4.5b for the company. However, the company is confident of offsetting this cost-push and maintaining its present cost structure. (In its recent analyst meet, the management stated that FY06 operating cost per ton for the company would be lower than in FY05). The company expects significant cost savings due to the following:

- Lower usage of sponge iron due to completion of shutdown and maintenance work in G-Blast Furnace. (To offset the production loss due to shutdown of G-Blast Furnace, the company used higher sponge iron, sourced from the market, which resulted in cost-push of over Rs2b).

- The company expects significant cost savings from economies of scale due to higher capacity and uninterrupted production in FY06.
- Ongoing management initiatives would improve efficiency.

Cost-push for Tisco would be the lowest (almost negligible) in the industry, as most of the other producers are sourcing a much higher percentage of their coal requirement from outside. For instance, SAIL is importing around 60% of its coking coal requirement.

Expansion plan on schedule

97. The company's 1m-ton expansion is on schedule and it has gone for a 110 days planned shutdown of its G-Blast Furnace from December 2004. Key details of the upgradation of the G-Blast Furnace and expansion are as follows:

- G-Blast Furnace likely to be commissioned by March 2005; estimated capex - Rs5.15b.
- Sinter plant and raw material yard commissioned in December 2004.
- Balancing facility in steel making likely to be commissioned in March 2005.
- New rebar mill likely to be commissioned in September 2005.

BENEFITS OF BLAST FURNACE UPGRADATION

		PRESENT	UPGRADED
1	Increase in production (m ton)	3,400	5,150
2	Increase in working volume (m3)	1,784	2,308
3	Campaign Life	10	15
4	Fuel Rate (kg/thm)		
	Coke	470	385
	Coal	100	160
5	Hot Metal Quality		
	% of S	.05	.035
	% of Si	.75	.5

Source: Company

Long-term growth plans

98. Tisco is moving towards its long-term growth plan of reaching 15m-ton capacity by the end of 2010. The company is going ahead with its 2.4m-ton expansion plan in Jamshedpur with a capex of Rs78b. This expansion will increase capacity of its Jamshedpur plant to 7.4m ton. The company is expecting this to be completed by August 2008. It has also started exploring the possibility of setting up a Greenfield plant in Orissa. Recently, the company approved a plan to raise Rs50b to meet its funding requirement for long-term expansion. It has also mentioned that it will keep on evaluating all its growth options *i.e.* organic as well as inorganic and will take decisions accordingly.

99. We believe that in the current scenario when access to raw material is playing a critical role in profitability and growth of companies, Tisco's captive iron ore and coalmines will also reduce its cost of expansion. Its strong balance sheet and management expertise gives it an edge over its peers in terms of execution of growth plans.

SAIL

Background

100. Steel Authority of India Limited (SAIL) is the leading steel-making company in India. It is a fully integrated iron and steel maker, producing both basic and special steels for domestic construction, engineering, power, railway, automotive and defence industries and for sale in export markets.

101. Ranked amongst the top ten public sector companies in India in terms of turnover, SAIL manufactures and sells a broad range of steel products, including hot and cold rolled sheets and coils, galvanised sheets, electrical sheets, structurals, railway products, plates, bars and rods, stainless steel and other alloy steels. SAIL produces iron and steel at four integrated plants and three special steel plants, located principally in the eastern and central regions of India and situated close to domestic sources of raw materials, including the Company's iron ore, limestone and dolomite mines.

102. SAIL's wide range of long and flat steel products is much in demand in the domestic as well as the international market. SAIL's own Central Marketing Organisation (CMO) and the International Trade Division carry out this vital responsibility. CMO encompasses a wide network of 38 branch offices and 47 stockyards located in major cities and towns throughout India.

103. With technical and managerial expertise and know-how in steel making gained over four decades, SAIL's Consultancy Division (SAILCON) at New Delhi offers services and consultancy to client's worldwide.

104. SAIL has a well equipped Research and Development Centre for Iron and Steel (RDCIS) at Ranchi, which helps to produce quality steel and develop new technologies for the steel industry. Besides, SAIL has its own in-house Centre for Engineering and Technology (CET), Management Training Institute (MTI) and Safety Organisation at Ranchi. Our captive mines are under the control of the Raw Materials Division in Calcutta. The Environment Management Division and Growth Division of SAIL operate from their headquarters in Calcutta. Almost all our plants and major units are ISO Certified.

Key highlights

Largest integrated steel company in India: SAIL is the largest integrated steel producer (11m ton capacity) in India with high level of integration. Captive production of iron ore, non-coking coal, limestone and dolomite reduces its vulnerability to input cost-push and results in better margins in comparison to non-integrated producers.

One of the biggest corporate turnaround stories: An upturn in the steel cycle helped SAIL achieve a remarkable improvement in its operating performance. SAIL is one of the biggest corporate turnaround stories in the last five years with a likely profit of Rs62.8b in FY05, against a loss of Rs18b in FY02. SAIL reduced its debt significantly in previous years (FY02 onwards) and will become a debt-free (net) company by FY06.

Large dividend payouts likely: Strong cash flows from operations and marginal capex (lower than depreciation) in FY05 and FY06 will translate into huge free cash flows for the company. We expect SAIL to distribute Rs12.6b as dividends (Rs3/share) in FY05, in line with the government's guideline to state-owned companies to distribute 20% of their reported net profit.

Steel Authority of India (SAIL) is the leading steel-making company in India and is ranked among the top 10 state-owned enterprises by turnover. It is a fully-integrated iron & steel maker, producing both basic and special steels for domestic construction, engineering, power, railway, automotive and defense

industries and for exports. SAIL produces iron and steel at four integrated plants and three special steel plants, located principally in the eastern and central regions of India and situated close to domestic sources of raw material, including the company's iron ore, limestone and dolomite mines.

One of the biggest corporate turnarounds
SAIL is one of the biggest corporate turnarounds in recent years. On the back of a sharp increase in global and domestic steel prices and improvement in its efficiency levels, it transformed itself from a debt-ridden loss-making company to a highly profitable debt free company.

SAIL TO BECOME DEBT-FREE BY FY06E (RS M)

	FY02	FY03	FY04	FY05E	FY06E
Net Debt	135,956.5	124,074.8	66,633.0	11,903.8	-12,378.9
Growth (%)		-		*-82.1%*	*-204.0%*
EBITDA	-807.6	15,900.6	40,382.0	98,119.0	72,538.6
OPM (%)	*-0.6*	*9.4*	*19.0*	*35.6*	*25.6*
PAT	-17,066.7	-3,049.4	25,120.5	62,877.6	41,085.3
NPM (%)	*-13.0*	*-2.0*	*12.0*	*23.0*	*14.0*

Source: Inquire Research

Focusing on improving its cost structure
Due to its huge workforce, lack of modernization and process-flow inefficiencies, SAIL had a high-cost structure compared to other steel producers. The management recognized the lacunae and is now focusing on improving the cost structure by taking care of these issues. We believe that these initiatives would result in significant improvement in the operating parameters of the company and offset the cost-push effect of higher coking coal prices.

Expansion plan

105. As part of the plan, SAIL will increase hot metal production from its plants to about 20m ton per annum by 2012, against the current level of 13m ton a year. Plant-wise break-up of hot metal production is as follows:

PROJECTED HOT METAL PRODUCTION OF INTEGRATED STEEL PLANTS (M TON)

	CURRENT LEVEL (2003-04)	PROJECTED LEVEL (2011-12)
Bhilai Steel Plant (BSP)	4.90	7.00
Durgapur Steel Plant (DSP)	1.98	3.20
Rourkela Steel Plant (RSP)	1.73	3.00
Bokaro Steel Plant (BSL)	4.10	6.50
Total	**12.71**	**19.70**

Source: Company

106. Based on the above, crude steel production by SAIL is expected to reach 18.7m ton a year by 2012 from the current level of 11.8m ton (achieved in 2003-04), leading to saleable steel production of 17.38m ton per annum, against the current level of 10.7m ton. In view of emerging market requirements, SAIL plans to raise its output of finished steel to 16.6m ton per annum by 2011-12 from the current level of 8.6m ton per annum, and reduce generation of semi-finished steel from 20% of saleable steel to 4%. This will enable inclusion of more value-added products in the company's product basket.

Investment plan

107. SAIL estimated that the measures to be taken to achieve the targeted levels of growth and sustain higher levels of cost and quality competitiveness will require investment in the region of Rs250b between

now and 2011-12. Capex for its priority schemes, to be completed by 2006-07, is estimated at around Rs43b. The company is planning to fund its capex mainly through internal accruals, and will supplement it with market borrowings if the need arises.

108. The plan for capital expenditure covers upgradation/modernization of some existing assets as well as installation of some new facilities. The areas broadly identified for investment pertain to

- Development of iron ore mines.
- Rebuilding coke oven batteries at BSP, DSP.
- Revamping of iron and steel making facilities at BSP, DSP and BSL.
- Installation of one blast furnace at RSP.
- Installation of auxiliary fuel injection systems in all blast furnaces in a phased manner.
- Installation of new finishing mills.

Jindal steel and power (JSPL)

Background

109. Jindal Steel & Power Ltd. (JSPL), formed in 1998 with the transfer of the Raipur and Raigarh units of Jindal Strips Limited (JSL), is the largest coal-based steel producer with a production of 0.62 mn tpa. Under the scheme of transfer, equity capital of JSL was split between JSL and JSPL in the ratio 60:40.

110. The Raigarh division (consisting of sponge iron, mild steel slabs and captive power consumption units), iron ore mines at Tensa (Orissa), coal mines at Gare (M.P.) and heavy engineering equipment unit at Raipur (M.P.) were transferred to JSPL. JSPL acquired a rail and structural mill, Iscor in South Africa and is relocating this near Raigarh. The plant, of capacity 0.8 mn tpa, is expected to be ready by March 2002. Commercial production at 6th rotary kiln (0.12 mn tpa capacity) commenced in Sep 2000. JSPL has obtained shareholder approval to invest in Jindal Infotech Ltd, up to 85% of its equity. Anderson Consulting has suggested a different product mix and other cost saving measures. The recommendations are expected to save Rs 10-12 crore in FY01. JSPL has commenced production of its sixth kiln from September 2000 with a capacity to produce 150 000 MT of sponge iron per annum hiking the production capacity to 650 000 MTs. The company has commenced production of the steel melting shop in November 1999 after a gap of two years. The Round caster unit at Raigarh commissioned in May 2000 stabilised in December 2000.

Key highlights

High level of vertical integration, a sustainable competitive advantage: JSPL is a highly integrated steel producer. It has captive iron ore and coal mines. It also has a captive source of power. Its low input costs make it one of the lowest cost producers of sponge iron in the world. Its high value added products like rails and structurals help it to 1earn higher margins.

Diversified business model: JSPL is diversifying its business risk by transforming itself from a pure steel producer to a diversified, steel and power producer. We believe that change in revenue stream from a pure cyclical steel business to a mix of steel and power will result in a rerating of the company. Jindal Steel & Power (JSPL) is one of the lowest cost producers of sponge iron in the world. Besides sponge iron, the company has interests in the steel and power businesses.

By March 2005, it will have the capacity to produce 1.3m ton of sponge iron, 1.1 m ton of mild steel, 550 000 ton of rails and medium-to-heavy structurals, and 255 MW of power.

Riding on steel cycle upturn
On the back of the upturn in the steel cycle, JSPL has shown impressive profit growth during the last three years. Due to the sharp growth in volumes and realizations, we estimate JSPL's three-year (FY03-FY05) revenue CAGR at 62.4%. We estimate EBITDA and net profit CAGR at 60.9% and 67.9%, respectively. Post-expansion, which we expect would be complete by March 2005, JSPL's revenues and net profit would grow by 50.3% and 34.4%, respectively in FY06.

Expansion projects likely to be completed ahead of schedule
We expect JSPL's second sponge iron kiln, with a capacity of 0.18m ton, to be commissioned by the end of January 2005, two months ahead of schedule. The remaining two kilns, with a capacity of 0.18m ton each, would be commissioned by March 2005, six months ahead of schedule. By March 2005, JSPL will also complete its steel furnace and captive power plant expansion. These expansions would boost FY06 revenues.

Long-term growth plans

111. JSPL is taking advantage of the present steel cycle upturn to scale up its operations. It has a definite expansion plan, which will make it one of the leading players in the steel and power sector.

CAPEX PLANS UP TO FY08

	EXISTING	POST MARCH '05	BY FY08
Production capacity (m ton)			
Sponge Iron	0.65	1.39	2.37
Rails & Structurals	0.55	0.55	0.55
Rounds/Slabs/Billets	0.4	1.15	3.15
Captive Power Plant (MW)	205	255	355
Hot Metals	0.25	0.25	1.5
Coke Oven	0	0	0.8
Sinter Plant	0	0	2.5
Ferro Alloys	0.036	0.036	0.086
Jindal Power Limited (MW)	0	0	1,000

Source: Company/Inquire

Future Plans

112. The price of sponge iron is firming up and is expected to remain stable. The benefits of the additional sponge iron capacity should now be enjoyed.

113. The implementation of the additional captive power plant of 55 MW at an estimated capital outlay of Rs 225 crore is expected to be completed ahead of schedule during the current financial year. The proposed generation of power from the new power plant will be at a very low cost because of the utilisation of coal washery rejects and char, a byproduct of sponge iron.

114. JSPL is in talks with Chattisgarh State Electricity Board for selling the additional power to be generated from the new power plant.

115. In order to reduce the variable cost of steel production, the company is setting up a new coal washery of 2.5 million MT at the coal mine itself. This is also expected to reduce transportation costs. The mini blast furnace and coal washery are expected to go onstream during the current financial year. It plans foray into IT related activities.

Essar steel

Background

116. Incorporated in 1976, Essar Steel Ltd (ESL) operates a 1.76-million tpa gas-based hot briquetted iron plant using midrex technology. ESL integrated forward with the commencement of commercial production at its 2-mn tpa hot rolled (HR) coil mill in April 1996. Trial production at the 0.15 million tpa cold rolling mill, set up as a JV in Indonesia started in FY96. As part of a backward integration plan, ESL set up a 3.3-mn tpa iron ore pelletisation plant in Vishakhapatnam. The wholly owned subsidiary Essar Power Ltd, to enable uninterrupted supply to ESL also set up a 515 MW power project. Since then, ESL has managed to establish its products in the domestic market with a 20% share in HR flat products.

117. Essar Steel's plant at Hazira produces some of the world's finest quality steel that gives it an Internationally competitive edge. Being a port based fully integrated plant, Essar enjoys considerable advantages in raw material intake and finished goods dispatch. Essar state-of-the-art technology, combined with seamless backward and forward integration is an added advantage in the highly competitive steel industry. Essar's flat products have found high acceptability in International market, especially in discerning market of the west and the growing markets of South East Asia and the Middle East.

Pelletisation Plant
Essar has set up a 4.0 MTPA pelletisation plant, at Visakhapatnam to supply high quality iron ore pellets at competitive prices to its hot briquetted iron (HBI) plant. After meeting the pellet requirement of Essar Steel, the balance production is sold in the domestic and international market.

Hot Briquetted Iron Plant
The hot briquetted iron (HBI) plant at Hazira is the world's largest gas-based producer of sponge iron with a production capacity of 3.5 MTPA. This plant supplies sponge iron to the adjacent plant.

Hot Rolled Coil Plant
The hot rolled coil plant at Hazira is the first and the biggest of India's new-generation steel mills, with a capacity of 3.0 MTPA.

Downstream Facilities
The steel complex has downstream facilities for highly customized products through its service centre, which has the capacity to process 1.2 MTPA of hot rolled coils. This centre, unique in India, includes two flying shear lines and two slitting lines of 0.2 MTPA capacity each, catering to the plates and sheets market. Essar is the only Indian plant with a 1.2 MTPA hot skin pass mill, where the steel's surface quality is enhanced to international standards.

Cold Rolled Coil Plant
Cold rolled coil manufacturers are major customers for its hot rolled coil production. As part of its strategy of integrating operations vertically and becoming a global player in the steel industry, Essar promoted PT Essar Dhananjaya, a 400,000 tonnes cold rolling complex in Indonesia, one of the most respected business houses in Indonesia.

Future Plans

118. ESL plans to raise Rs 6.3 billion from divestments in associate companies. The maturity profile of debt is being extended from the present level of about 3 years to 8 years. This will facilitate the company to repay debt from internal accruals. Efforts on this front have reached the final stages.

119. ESL is planning to raise Rs 3.3 billion through a 1:1 rights issue. It has already received approvals from the financial institutions and creditors. A similar sized rights issue announced earlier, was cancelled.

120. ESL has identified key areas to reduce costs in the future. Newly added products are expected to provide value to the company's revenue streams in the future. In order to enhance the brand equity for Essar 24 carat steel brand and to ensure long term relationship with customers, further campaigns are planned for FY2001-02.

121. The web-enabled centers concept, which was launched this fiscal, will be test run in Gujarat. ESL plans to open 17 distribution centers of which 2 are fully operational.

122. ESL is undertaking a comprehensive business restructuring exercise to make it flexible to face future downturns and has appointed KPMG to undertake a study.

Ispat steel

Background

123. Ispat Industries Limited (IIL) is one of the leading integrated steel makers and the largest private sector producer of hot rolled coils in India. Set up as Nippon Denro Ispat Limited in 1985 by founding chairman Mr M L Mittal, IIL has steadily grown into a Rs 4 000-crore company, assuming its position as flagship of the reputed Ispat Group. A corporate powerhouse with operations in iron, steel, mining, energy and infrastructure, the Group today figures among the top 20 business houses in the country.

124. Headquartered at Mumbai, IIL employs a total of 2000 people and is the leader in the national speciality steel market. The company's core competency is the production of high quality steel, for which it employs cutting edge technologies and stringent quality standards. It produces world-class sponge iron, galvanised sheets and cold rolled coils, in addition to hot rolled coils, through its two state-of-the art integrated steel plants, located at Dolvi and Kalmeshwar in the state of Maharashtra.

125. The sprawling 1,200 acre Dolvi complex houses the 2.4 million tonne per annum hot rolled coils plant, that combines the latest technologies - the Conarc process for steel making and the compact strip process (CSP) - introduced for the first time in Asia.

126. The complex also has a 1.4 million tonne per annum sponge iron (DRI) plant, which was commissioned in 1994 as the world's largest and most efficient gas-based single mega module plant. Moreover, the Dolvi complex is home to a 2 million tonne blast furnace and also boasts a mechanised multi-functional jetty situated nearby, that facilitates the automation of raw material handling.

127. Ispat is the only steel maker in India and among a few in the world to have total flexibility in choice of steel making route, be it the conventional blast furnace route or the electric arc furnace route. Its dual technology allows Ispat the freedom to choose its raw material feed, be it pig iron, sponge iron, iron ore, scrap or any combination of various feeds. It also has total flexibility in choosing its energy source, be it electricity, coal or gas.

Investment plans

128. Ispat steel would invest Rs 1 100 crore during the current fiscal to fund the expansion of its Dolvi plant and new projects.

129. "The total investment during the current year would be Rs 1 100 crore of which (investment of) Rs 630 crore is in different stages of implementation," IIL chairman Pramod Mittal said on the sidelines of the company's 20th annual general meeting (AGM) here.

130. Ispat has become a subsidiary of UAE-based Global Steel Holdings, the holding company promoted by PK Mittal and VK Mittal and controls 54 per cent.

131. Ispat has decided to hike the hot rolled coils' production capacity to 3.3 million tonne from 2.4 million tonne at present. The group is also looking for overseas acquisitions but there is nothing in the pipeline at the moment, he said.

132. Other projects in the pipeline include a sinter plant of two million tonne capacity, an oxygen plant with a capacity of 1 260 tonne per day, an electric arc furnace and a gas cleaning plant. These investments would help the company to reduce production costs and make the products more competitive.

INDIAN STEEL: THE WAY FORWARD

Outlook: steel demand to grow at 6-8% over the next 2 years

133. In FY06, (April- August 2005), the consumption of steel continues to be strong, growing at over 9% y-o-y compared to a 5.9% growth visible in (April-August 2004). However, imports grew substantially by 56% whereas exports declined by 7% during April-August 2005. We believe the broad contours for the sector remain attractive in the medium and the long term. The strong growth expected in the infrastructure sector, housing, automobiles and consumer durables is expected to push steel demand northwards by 6-8% over the next two years in the Indian market.

Growth statistics: Indian steel

	Apr-Aug 04	Apr-Aug 05	Growth (%)
Production	15098	16220	7.43
Imports	767	1200	56.45
Consumption	12783	13970	9.29

Source: JPC

134. Growth can be much higher if infrastructure bottlenecks are removed at the earliest.

Capacity expansion in India: unlikely to lead to excess supply situation

135. The global steel consumption in the last 15 years grew at a CAGR of 2% to reach about 1 000 million tonnes. As the production and consumption base shifts to developing markets, we expect a growth of about 3% in global consumption over the next 15 years. Though China will continue to dominate the steel scene, India will be a key player to participate in this incremental growth.

136. The objective of the Indian steel industry is to become a globally competitive manufacturing centre catering to domestic as well as international demand. The National Steel Policy envisages a production capacity of 145-155 million tonnes by 2020.

In million tonnes

	2004-05	2019-20
Capacity	35	145-155
Production	38	110
Imports	2	6
Export	4	26
Consumption	36	90

Source: Ministry of Steel

137. It is important to reiterate that these capacity additions will be in phases after assessment of the demand-supply scenario. It is unlikely that all of them will materialize simultaneously. The first of the expanded capacities will be that of Tata Steel of 1.8 million tonnes at Jamshedpur. This should be completed by December 2009.

"We still have a number of persons in our country in SAIL, TISCO and other big and small steel plants who have the capabilities. They have the will to excel and transform the country, given a long term vision."

"We should be ready to compete in outside markets…..If our steel industry gears up in about 3 to 4 years, Indian steel can be both in Indian and foreign markets. Our vision should be towards this."

- Indian 2020: A vision for the new millennium by APJ Adbul Kalam and YS Rajan

138. The Government envisions India becoming a developed nation by 2020 with a per capita GDP of $1 540. For a nation that is economically strong, free of the problems of underdevelopment and plays a meaningful role in the world as befits a nation of over one billion people, the groundwork would have to begin right now. The Indian Steel Industry will be required and is willing to play a critical role in achieving this target.

139. With abundant iron ore resources and well-established base for steel production in the country, steel is poised for growth in the coming decades. Production has increased from 17 MT in 1990 to 36 MT in 2003 and 66 MT is targeted for 2011. While steel will continue to have a stronghold in traditional sectors such as construction, housing, ground transportation, special steels will be increasingly used in hi-tech engineering industries such as power generation, petrochemicals, fertilisers etc. Steel will continue to be the most popular, versatile and dominant material for wide ranging applications. While India may not become a leader in world steel market, it can become a powerful force.

ANNEX

State wise consumption

HR-flats state wise category wise consumption

('000 tonnes)	2001-02				2002-03				2003-04			
	A	B	C	Total (B+C)	A	B	C	Total (B+C)	A	B	C	Total (B+C)
Southern region	518	**135**	**847**	**982**	377	96	944	**1,040**	439	164	960	**1,124**
Andhra Pradesh	108	46	350	396	105	20	395	415	122	48	402	450
Karnataka	175	28	192	220	76	18	210	228	88	36	214	250
Kerala	2	2	5	7	4	8	4	12	5	0	4	4
Tamil Nadu	233	59	300	359	192	50	335	385	224	80	340	420
Eastern region	375	**174**	**1,148**	**1,322**	335	103	1,450	**1,553**	391	153	1,478	**1,631**
Assam	6	7	28	35	5	4	40	44	6	6	41	47
Bihar	79	58	299	299	70	35	322	357	82	58	328	386
Orissa	80	24	206	206	114	10	220	230	133	14	224	238
West Bengal	210	85	615	615	146	54	868	922	170	75	885	960
Northern region	352	**233**	**2,697**	**2,930**	272	216	2,987	**3,203**	317	279	3,041	**3,320**
Delhi	34	30	340	340	44	48	375	423	51	60	382	442
Haryana	43	29	617	617	46	58	667	725	54	65	679	744
Jammu and Kashmir	0	0	0	0	0	2	0	2	0	1	0	1
Punjab	37	95	675	675	55	52	760	812	64	90	774	864
Rajasthan	38	23	55	55	25	20	60	80	29	18	61	79
Uttar Pradesh	200	56	1,010	1,010	102	36	1,125	1,161	119	45	1,145	1,190
Western region	339	**103**	**1,797**	**1,797**	573	104	1,914	**2,018**	688	130	1,948	**2,078**
Gujarat	70	20	357	357	45	22	376	398	52	25	383	408
Madhya Pradesh	53	45	350	350	290	40	390	430	338	51	397	448
Maharashtra	216	38	1,090	1,090	238	42	1,148	1,190	278	54	1,168	1,222
Total	1,584	**645**	**6,489**	**7,031**	**1,557**	**519**	**7,295**	**7,814**	**1,815**	**726**	**7,427**	**8,153**

A: Plates; B: HR Sheets; C: Coils/skelps

Source: Steel Scenario

CR sheets coils: State wise consumption

('000 tonnes)	1997-98	1999-2000	2000-01	2001-02	2002-03	2003-04
Southern region	**760**	**690**	**957**	**1,022**	**1,034**	**1,117**
Andhra Pradesh	246	248	280	300	270	290
Karnataka	220	260	275	292	320	345
Kerala	12	2	2	2	2	2
Tamil Nadu	282	180	400	428	442	480
Eastern region	**554**	**607**	**800**	**847**	**876**	**897**
Assam	32	34	40	43	40	90
Bihar	135	190	200	213	210	242
Orissa	132	103	200	206	202	214
West Bengal	255	280	360	385	424	351
Northern region	**761**	**1,107**	**1,072**	**1,144**	**1,388**	**1,485**
Delhi	90	110	135	144	409	430
Haryana	127	324	185	198	315	272
Jammu and Kashmir	3	1	2	2	2	2
Punjab	235	288	290	309	310	325
Rajasthan	20	24	42	45	44	146
Uttar Pradesh	286	360	418	446	308	310
Western region	**1,041**	**1,365**	**1,188**	**1,278**	**1,216**	**1,165**
Gujarat	158	230	210	225	140	152
Madhya Pradesh	148	215	128	145	160	108
Maharashtra	735	920	850	908	916	905
Total	**3,116**	**3,769**	**4,017**	**4,291**	**4,514**	**4,664**

Source: Steel Scenario

GP/GC sheets; state wise consumption

('000 tonnes)	1997-98	1999-2000	2000-01	2001-02	2002-03	2003-04
Southern region	**117**	**118**	**143**	**147**	**106**	**77**
Andhra Pradesh	20	26	35	35	35	26
Karnataka	30	28	28	30	16	22
Kerala	9	12	15	12	7	8
Tamil Nadu	58	52	65	70	48	21
Eastern region	**202**	**249**	**328**	**460**	**356**	**370**
Assam	30	58	75	90	83	82
Bihar	72	75	102	153	85	86
Orissa	16	26	35	85	54	86
West Bengal	84	90	116	132	134	116
Northern region	**428**	**437**	**584**	**627**	**435**	**381**
Delhi	103	90	122	124	68	65
Haryana	65	62	80	96	53	53
Jammu and Kashmir	10	10	12	10	7	6
Punjab	104	135	185	194	128	95
Rajasthan	28	20	25	28	25	30
Uttar Pradesh	118	120	160	175	154	132
Western region	**254**	**307**	**415**	**430**	**283**	**282**
Gujarat	68	60	85	95	50	62
Madhya Pradesh	58	72	95	92	70	72
Maharashtra	128	175	235	243	163	148
Total	**1,001**	**1,111**	**1,470**	**1,664**	**1,180**	**1,110**

Source: Steel Scenario

Bars and rods: state wise consumption

('000 tonnes)	1997-98	1999-2000	2000-01	2001-02	2002-03	2003-04
Southern region	**1,593**	**1,955**	**2,306**	**2,363**	**2,549**	**2,177**
Andhra Pradesh	305	468	550	574	600	730
Karnataka	601	649	630	655	700	518
Kerala	40	92	130	96	144	98
Tamil Nadu	647	746	996	1,038	1,105	831
Eastern region	**1,365**	**1,516**	**1,702**	**1,808**	**1,893**	**2,308**
Assam	40	38	40	42	45	90
Bihar	275	287	392	408	435	310
Orissa	114	131	152	158	168	318
West Bengal	936	1,060	1,118	1,200	1,245	1,590
Northern region	**2,595**	**2,659**	**3,004**	**3,090**	**3,310**	**3,016**
Delhi	230	244	327	342	365	472
Haryana	160	195	186	193	205	180
Jammu and Kashmir	50	81	110	115	125	75
Punjab	1,275	1,244	1,414	1,415	1,544	1,065
Rajasthan	137	125	177	185	196	212
Uttar Pradesh	743	770	790	840	875	1,012
Western region	**2,257**	**2,232**	**2,191**	**2,348**	**2,428**	**3,113**
Gujarat	540	404	415	433	460	213
Madhya Pradesh	702	598	664	693	743	1,250
Maharashtra	1,015	1,230	1,112	1,222	1,225	1,650
Total	**7,810**	**8,362**	**9,203**	**9,609**	**10,180**	**10,614**

Source: Steel Scenario

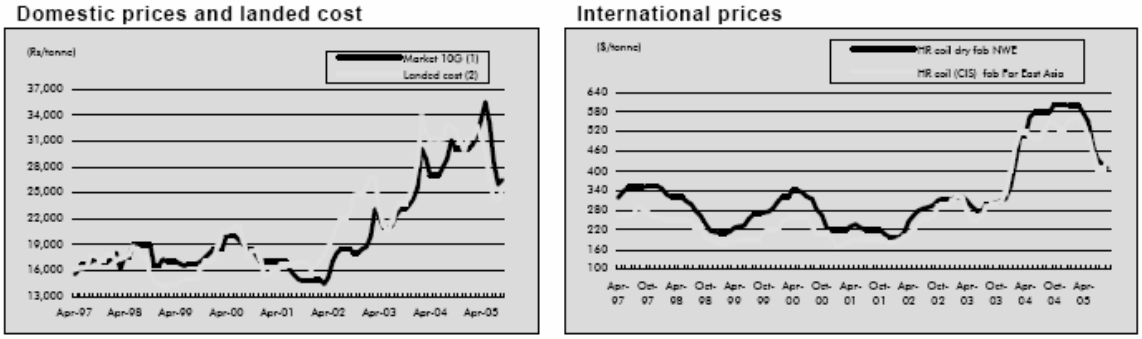
Structural: state wise consumption

('000 tonnes)	1997-98	1999-2000	2000-01	2001-02	2002-03	2003-04
Southern region	**467**	**680**	**552**	**684**	**535**	**721**
Andhra Pradesh	81	150	108	164	195	210
Karnataka	116	188	149	170	110	138
Kerala	12	19	24	16	10	8
Tamil Nadu	258	323	271	334	220	365
Eastern region	**477**	**392**	**355**	**373**	**488**	**655**
Assam	8	5	4	5	5	18
Bihar	60	53	63	46	35	82
Orissa	55	54	43	30	68	75
West Bengal	354	280	245	292	380	480
Northern region	**861**	**643**	**679**	**611**	**587**	**782**
Delhi	55	82	71	110	125	144
Haryana	65	27	30	24	22	16
Jammu and Kashmir	5	7	7	6	8	4
Punjab	450	300	334	273	225	240
Rajasthan	50	62	75	49	40	92
Uttar Pradesh	236	165	162	149	167	286
Western region	**655**	**809**	**716**	**621**	**679**	**785**
Gujarat	157	143	107	129	114	185
Madhya Pradesh	161	308	291	247	293	257
Maharashtra	337	358	318	245	272	343
Total	**2,460**	**2,524**	**2,302**	**2,289**	**2,289**	**2,943**

Source: Steel Scenario

Comparison: domestic steel prices and international steel prices

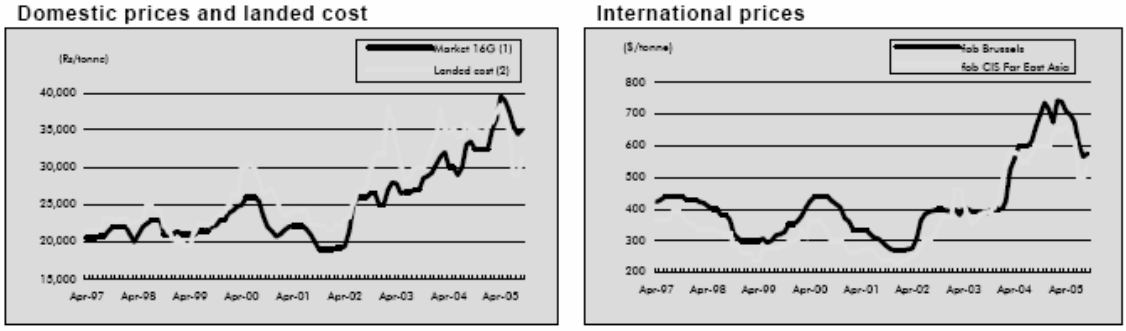
HR coil



(1) HR Sheet; (2) HR Coil (CIS)

Source: Metal Bulletin

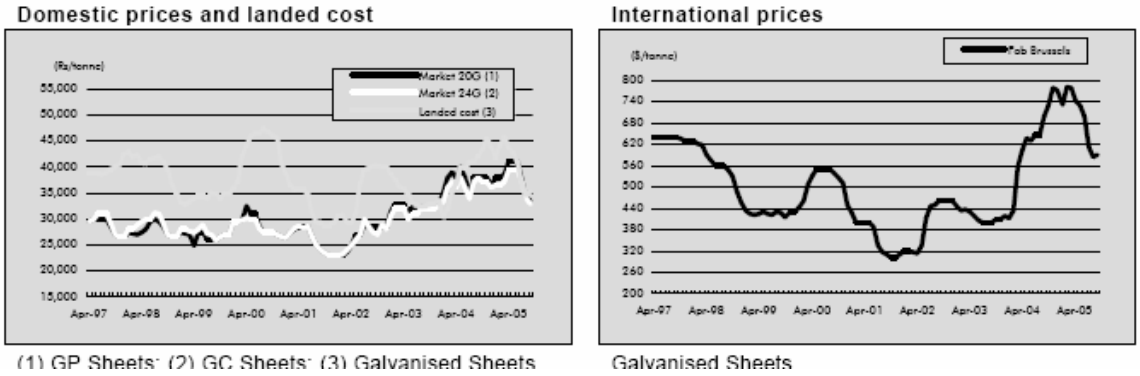
CR coil



(1) CR Sheet; (2) CR Coil (CIS)

Source: Metal Bulletin

Galvanized plain/galvanized corrugated



(1) GP Sheets; (2) GC Sheets; (3) Galvanised Sheets

Galvanised Sheets

World steel comparison

	Ticker	Morgan Stanley Stock Rating	Market Cap (US$ mn)	P/BV 2004	P/BV 2005	P/E 2004	P/E 2005	EV/EBITDA 2004	EV/EBITDA 2005	ROAE 2004	ROAE 2005
North America											
AK Steel Holding Co.	AKS.N	Underweight	735	NA	3.4	NA	4.0	NA	5.3	NA	161%
Nucor	NUE.N	Equal-Weight	8226	2.4	1.8	7.5	6.5	4.0	3.0	37%	31%
Steel Dynamics	STLD.O	Overweight	1458	NA	1.4	NA	6.1	NA	3.3	NA	27%
US Steel	X.N	Overweight	4970	NA	1.4	NA	4.4	NA	2.8	NA	39%
Europe											
Acerinox	ACX.MC	Underweight	3711	1.7	1.5	10.5	11.2	6.3	6.5	17%	14%
Arcelor	CELR.PA	Overweight	11675	1.0	0.7	4.1	4.0	3.1	2.3	26%	20%
Corus	CS.L	Underweight	3640	0.7	0.5	5.7	3.8	3.2	2.0	14%	15%
ThyssenKrupp	TKAG.DE	Equal-Weight	8826	0.9	0.7	8.9	7.5	5.2	4.7	NA	10%
Voestalpine	VOES.VI	Underweight	2635	1.0	0.9	7.2	6.8	3.4	3.0	15%	14%
Asia											
BlueScope Steel	BSL.AX	Overweight	4320	1.6	1.6	8.7	5.6	4.7	3.2	19%	31%
POSCO	005490.KS	Equal-Weight	14366	0.9	0.7	3.8	3.5	2.4	2.1	26%	23%
China Steel Corp.	2002.TW	Overweight	9022	1.8	1.7	7.2	8.3	4.1	4.5	26%	21%
Angang New Steel	0347.HK	++	++	++	++	++	++	++	++	++	++
Maanshan Iron &Stl.	0323.HK	Equal-Weight	2337	1.0	0.9	4.5	5.7	3.7	3.9	23%	17%
Baoshan Iron & Stee	600019.SS	Overweight	6999	1.4	1.2	6.2	6.1	3.0	2.7	24%	21%
Tata Steel	TISCO.BO	Overweight	4163	2.5	1.7	5.3	4.0	3.5	2.7	59%	50%
SAIL	SAIL.BO	Overweight	4806	2.1	1.3	3.1	2.7	2.0	1.3	89%	59%
Japan											
Godo Steel	5410.T	Equal-Weight	557	1.0	0.9	4.4	6.4	5.2	4.1	25%	15%
Hitachi Metals	5486.T	Overweight	2327	1.4	1.3	13.8	15.2	6.2	5.8	11%	9%
JFE Holdings	5411.T	Overweight	14119	2.0	1.5	5.3	5.2	4.4	3.6	40%	32%
Kobe Steel	5406.T	Equal-Weight	5477	1.6	1.3	10.8	7.6	5.4	4.6	16%	19%
Nippon Steel	5401.T	Overweight	15979	1.7	1.4	8.4	6.4	4.4	3.4	22%	24%
Nisshin Steel	5407.T	Underweight	2325	0.9	0.8	6.1	6.2	3.8	3.3	16%	14%
Sumitomo Metal Inds.	5405.T	Overweight	8294	1.9	1.5	9.7	7.8	6.8	5.6	20%	21%
Tokyo Steel	5423.T	Overweight	1964	1.4	1.0	4.7	5.1	1.4	0.6	34%	22%

++ Stock Rating, Price Target or Estimates are not available or have been removed due to applicable law and/or Morgan Stanley policy.

ND = Not Disclosed, NA = Not Available, and NM = Non Meaningful

Note: All data has been fiscal aligned.

Source: Company data, Morgan Stanley Research

Raw material comparison

Raw material costs

	Global context	Indian context
Iron ore	In 2005, iron ore contract prices are likely to go up to $40-45 and average spot prices may even go as high as $80 per tonne, due to the tight demand-supply situation. However, in 2006, the price may come down due to significant capacity addition.	Indian iron ore prices will also rise, driven by high export prices. However, no shortage is feared as the country has sufficient iron ore reserves of high quality. CRIS INFAC expect the average prices iron ore to be Rs 2,200-2,500 per tonne.
Coke	CRIS INFAC expects average coke prices to be in the range of $300-350 per tonne. Although demand growth will be met by sufficient supply growth, prices will still remain at the current high levels, driven by high coking coal prices.	Indian coke prices are likely to average around Rs 13,000-15,000 per tonne, driven entirely by global demand. India's dependence on imports is expected to continue with strong demand growth.
Coking coal	Coking coal prices are likely to shoot up in 2005 by more than 100 per cent. Contract prices for 2005 are likely to be around $125 per tonne. With higher incremental growth in demand than supply, CRIS INFAC does not rule out the possibility of the non-availability of coking coal in spot market.	As India doesn't have sufficient reserves of coking coal, and also since it is not of high quality, global prices will translate into costs for domestic manufacturers.
Scrap	CRIS INFAC expects global scrap prices to average $225-250 per tonne. The demand-supply situation of scrap is likely to be stable, resulting in steady prices.	The domestic price of scrap is likely to average Rs 13,000-15,000 per tonne. India's import dependence is likely to remain.

Source: CRIS INFAC

Trend of customs and excise duty in India

Steel products: Customs duty — Table 7

(per cent)	1994-95	1995-96	1996-97	1997-98	Oct-97	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05
Bars and rods	50.0	40.0	32.0	32.0	35.0	35.0	38.5	44.0	40.4	35.2	30.0	5.1
Structurals	50.0	40.0	32.0	32.0	35.0	35.0	38.5	44.0	40.4	35.2	30.0	5.1
Plates	50.0	40.0	32.0	32.0	35.0	35.0	38.5	44.0	40.4	35.2	30.0	5.1
HR coils	40.0	30.0	27.0	27.0	30.0	30.0	27.5	32.6	30.0	30.0	30.0	5.1
CR coils	50.0	40.0	32.0	27.0	30.0	35.0	38.5	44.0	40.4	35.2	30.0	5.1
GP/GC sheets	50.0	40.0	32.0	32.0	35.0	35.0	38.5	44.0	40.4	35.2	30.0	5.1
Electrical steel sheets	50.0	40.0	32.0	32.0	35.0	35.0	38.5	44.0	40.4	35.2	30.0	5.1
TMBP	30.0	30.0	27.0	22.0	30.0	30.0	27.5	32.6	30.0	30.0	30.0	5.1
Tin plates	50.0	40.0	32.0	32.0	35.0	35.0	38.5	44.0	40.4	35.2	30.0	5.1

TMBP: Tin mill black plate

Notes

1) From 2000-01, customs duty includes the SACD of 4 per cent, effective since 1998-99. In 1998-99 and 1999-2000, the SACD was applicable only for non-traders, and hence, was not included in the customs duty. However, this duty has been abolished w.e.f January 2004.

2) For 2000-01, the customs duty includes the surcharge of 10 per cent on the basic customs duty. The 10 per cent surcharge has been removed in the Union Budget 2001-02.

3) Since July 2004, 2 per cent education cess has been imposed.

Source: Central Customs Tariff

Steel products: Excise duty — Table 8

(per cent)	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05
Bars and rods	15	15	15	15	15	16	16	16	16	16	12.2
Structurals	15	15	15	15	15	16	16	16	16	16	12.2
Plates	15	15	15	15	15	16	16	16	16	16	12.2
HR coils	15	15	15	15	15	16	16	16	16	16	12.2
CR coils	15	15	15	15	15	16	16	16	16	16	12.2
GP/GC sheets	15	15	15	15	15	16	16	16	16	16	12.2
Electrical steel sheets	15	15	15	15	15	16	16	16	16	16	12.2
TMBP	15	15	15	15	15	16	16	16	16	16	12.2
Tin plates	15	15	15	15	15	16	16	16	16	16	12.2

TMBP: Tin mill black plate
Source: Central Excise Tariff

Steel: Tariffs, prices and landed costs

	Tariff (per cent)				Prices (Feb 2005)		Landed cost (Rs/tonne)	
	Customs		Excise		Domestic	International	Pre-Budget	Post-Budget
	2004-05	2005-06	2004-05	2005-06	(Rs/tonne)	($/tonne)		
GP/GC	5.1	5.1	12.2	16.3	38,000	730	41,275	42,764
CR coils	5.1	5.1	12.2	16.3	35,000	650	37,095	38,433
HR coils	5.1	5.1	12.2	16.3	30,500	588	33,856	35,077
Structurals	5.1	5.1	12.2	16.3	24,500	-	-	-
Bars and rods	5.1	5.1	12.2	16.3	24,000	490	28,736	29,772
Alloy steel	15.3	10.0	12.2	16.3	-	-	-	-
Billets/Slabs [1]	5.1	5.1	12.2	16.3	25,000	340	21,004	21,762
Pig iron	5.1	5.1	12.2	16.3	14,500	310	19,331	20,029
HBI/Sponge iron	10.2	10.2	12.2	16.3	14,000	-	-	-
Ferro alloys	15.3	10.2	12.2	16.3	-	-	-	-
Steel melting scrap [2]	0.0	0.0	12.2	16.3	15,000	250	15,570	16,132
Iron ore	0.0	0.0	-	-	-	-	-	-
Coking coal (< 12% ash content)	0.0	0.0	-	-	-	-	-	-
Coking coal (>12% ash content)	15.3	5.1	-	-				
Metallurgical coke	5.1	5.1	-	-				-
Non-coking coal	5.1	5.1	-	-	-	-	-	-

[1] Prices are for January 2005

Source: CRIS INFAC.