

Valuation of Risk and Return of Analysis of Steel Industry in India

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Abstract:

The stock market never left out with risk even steel industry. The risk is two kinds viz. systematic and unsystematic risk. Unsystematic risk is zero, the other risk is called systematic risk. Based on this study, the systematic risk and return on monthly basis. The study identified the risk and return of steel companies in India, namely Tata Steel, Jindal Steel and Power Limited and Steel Authority of India Limited.

Keywords: India, Return, Risk and Steel Industry.

Introduction:

The risk and return analysis of stocks can be measured in terms of beta and average return over periods. The risk means the systematic risk of the security. When the unsystematic risk is zero, the remaining risk is systematic risk and it is considered at risk of stocks. The return is considered as opening price and the closing price of the period of the study.

Review of Literature:

Pamane and Vikpossi¹ (2014) commended on the capital asset pricing model using BRVM (Bourse Regionale Des Valeurs Mobiliers). It found the validity of the CAPM and BRVM Stock Exchange. The researcher used 17 listed companies under BRVM stock exchange.

Naveen and Mallikarjunappa² (2016) was investigated Bank Nifty Index with 12 listed banking companies with reference to Indian Stock Market. The researcher found the risk and return analysis of 12 listed bank stocks for a period of 5 years from 2011 to 2016. The following banking 8 stocks were having more than 1 as beta, i.e., Federal Bank, IndusInd Bank, Yes Bank, Axis Bank, Canara Bank, ICICI Bank, Punjab National Bank and State Bank of India. The other 4 stocks were had less the 1 as they're beta, i.e., Bank of India, HDFC, Bank of Baroda and Kotak Bank. The researcher also measured the mean, standard deviation and correlation of the all 12 stocks listed under CNX Bank Nifty.

Objectives of the Study:

1. To identify the factors affecting the risk and return on equity shares.

¹ Pamane, Kolani, and Vikpossi, Anani Ekoue. (2014), An Analysis of Relationship between Risk and Expected Return in the BRVM Stock Exchange: Test of the CAPM, *Research in World Economy*, 5 (1), pp. 13 – 28.

² Naveen, Shalini and Mallikarjunappa, T. (2016), A Study on Comparative Analysis of Risk and Return with reference to Stocks of CNX Bank Nifty, *International Journal of Scientific Research and Modern Education*, 1 (1), pp. 737 – 743.

2. To know the risk and return of steel stocks in India.
3. To analyze the risk and return of steel stocks in India.

Research Methodology:

The secondary data was collected from national stock exchange. Some information was gathered from the various research journals and periodicals.

Research Design:

The three steel companies were chosen for the analysis purpose. It was chosen based on revenue booked during the financial year 2016-17. Based on revenue and listed in the national stock market of India i.e., Tata Steel Ltd., JSW Steel Ltd. and Jindal Steel and Power Ltd.

Scope of the Study:

The sample for the study is 3 steel companies listed in Nifty. The study is limited to only these selected steel stocks and covers the one year month wise performance of the stock for the study of the period of one year from 01.11.2016 to 31.10.2017.

Companies Profile:

Tata Steel

Tata Steel Ltd is the world's 10th largest steel company and the world's 2nd most geographically diversified steel producer. The company is a diversified steel producer with major operations in India, Europe and South East Asia. They have manufacturing units in 26 countries and a presence in 50 European and Asian markets. The company together with their subsidiaries, engages in the manufacture and sale of steel products in India and internationally. They offer hot and cold rolled coils and sheets, galvanized sheets, tubes, wire rods, construction rebars and bearings.

The company also involves in prospecting, discovering, and mining iron ore, coal, ferro alloys and other minerals; designing and manufacturing plants and equipment for steel, oil and natural gas, energy and power, mining, railways, ports, aviation and space industries; and agricultural implements. Further, they offer alumina, dolomite and monolithic refractories as well as silica refractories for coke ovens and the glass industry; manufactures bricks; sponge iron lumps and fines; and rolls for applications in integrated steel plants, power plants, and government mint, as well as paper, textile, and food processing sectors.

Tata Steels operations are grouped under six Strategic Business Units include Bearings Division, Ferro Alloys and Minerals Division, Agrico Division, Tata Growth Shop (TGS), Tubes Division and Wire Division. They have introduced several branded steel products, including Tata Steelium (the worlds first branded Cold Rolled Steel), Tata Shaktee (Galvanised Corrugated Sheets), Tata Tiscon (rebars), Tata Pipes, Tata Bearings, Tata Structural, Tata Agrico (hand tools and implements) and Tata Wiron (galvanised wire products).

Tata Steel Ltd was incorporated in the year 1907 with the name Tata Iron & Steel Company Ltd. In the year 1911, the company commenced the operations of the first Blast Furnace or the A Blast Furnace. In December 2, 1911, the fist collieries were obtained and the first cast of pig iron was produced. In the

year 1912, the first ingot of steel rolled out of the Sakchi Plant and in October 1912, the Bar Mills started their commercial production. Also, the B Blast Furnace became operational during the year. In the year 1918, India's first steel (coke) plant was established in Jamshedpur.

In the year 1925, the New Rail Mill, Merchant Mill and Sheet Mill went into operation. In the year 1931, they opened an apprentice shop. In the year 1941, they started manufacture of special steel for war purpose. They produced a wide variety of special steels required for defense purposes, including armored cars called "Tatanagars". In the year 1943, Howrah Bridge was constructed from steel supplied by the company. In the year 1955, the company signed an agreement with Kaiser Engineers for two million tonne expansion programs. In the year 1980, they started the first phase of the four-phased modernization program.

In the year 1984, the company introduced BOF steelmaking, which could produce liquid steel in forty five minutes when it took the old open hearth furnaces, close to five hundred under the first phase of modernization. During the year 1984-85, Indian Tubes Company Ltd was amalgamated with the company. The second phase of modernization was in the year 1988, which concentrated largely on the iron-making area. During the year 1993-94, the company commissioned the Hot Strip Mill with the capacity of one million tonne per annum which was the company's third modernization program. In the year 2000, the company inaugurated the 1.2 million tonnes Cold Rolling Mill Complex as a first step towards expansion and modernization.

On January 2, 2004, The Indian Steel Wire Products Company was acquired in Jamshedpur. In June 4, 2005, the company signed an MoU for setting up a five-million tonne per annum Greenfield integrated steel plant in the Jagdalpur district of Chhattisgarh. In July 2005, they formed a joint venture with Blue Scope Steel Ltd, Australia for the quoted steel manufacturing facility. In July 21, 2005, the company acquired stakes in the Australian coal mines. In August 2005, the company sets up Met coke manufacturing facility in West Bengal.

In September 19, 2005, the company signed an MoU with the Government of Jharkhand for setting up a 12-million tonnes per annum Greenfield integrated steel plant in the Manoharpur and Chandil areas of Jharkhand. In December 14, 2005, they signed a definite agreement with Cement Holdings Company to acquire shares and invest equity in the Millennium Steel, Thailand. Also, the name of the company was changed from Tata Iron & Steel Company Ltd to Tata Steel Ltd with effect from May 19, 2005.

In the year 2006, the company inaugurated India's first automated Jigging and Hydrocyclone Plant, with a 1.6 MTPA throughput, at Noamundi Iron Mines. They commenced the work of Ferro Chrome Plant by acquiring Rawnet Ferrous Industries Pvt Ltd, in Orissa, a Ferro Alloys plant with a capacity of 50,000 tpa of high carbon chrome. They set up a Joint Venture Company with Larsen and Toubro Ltd for developing an all weather modern deep water port in the state of Orissa on the Eastern Coast of India. Tata NYK Shipping Pvt Ltd, a joint venture shipping company between the company and Nippon Yusen Kabushiki Kaisha was set up to cater to dry and break bulk cargo and also the shipping activities. In August 7, 2006, the company inaugurated the Roll Forming and Pre-Engineered Building Facilities of Tata Bluescope Ltd in Pune.

In April 2, 2007, the company acquired Corus Europe's second largest steel producer for consideration of USD 12 Billion, which made Tata Steel the sixth largest steel producer globally and the

second-most geographically diversified steel producer in the world. They also entered into an agreement for acquiring controlling equity stake in two rolling mills located in Haiphong, Vietnam. Also, they signed a joint venture agreement with Riversdale Mining for Mozambique coal project. In December 2007, the company and SODEMI (state owned company for mineral development) entered into a joint venture agreement for the development of Mount Nimba Iron ore deposits in Ivory Coast (West Africa).

In January 2008, the company and the members of the Al Bahja Group, a leading business house of Oman entered into a Joint Venture Agreement for the development of the Uyun Limestone deposits at Salalah in the Sultanate of Oman. Also, they entered an agreement with Steel Authority of India Ltd (SAIL) to establish a 50:50 joint venture company for coal mining in India. In February 2008, they opened their fourth retail outlet, "steeljunction" at Behala.

During the year 2008-09, the company completed the expansion of crude steel capacity to 6.8 mtpa as part of their expansion program. Also, they commissioned Sinter Plant No. 4, the "H" Blast Furnace and the Continuous Caster No. 3 at LD Shop-1 during this expansion phase. On June 16, 2008, the company and their wholly owned subsidiary, Rawmet Ferrous Industries Ltd entered into an agreement with Jasper Industries Pvt Ltd for set up a coal based power plant of 2 X 67.5 MW capacity in Orissa.

In September 2008, the company through their subsidiaries signed a Heads of Agreement memorandum with the New Millennium Capital Corporation (NML), a Canadian listed mining company aiming to develop iron ore projects in Northern Quebec, Labrador and Newfoundland provinces. As part of the restructuring of the overseas holdings, the company transferred their stake in Tata Steel (Thailand) Public Company Ltd to Tata Steel Global Holdings Pvt Ltd. The company subscribed 35,88,022 rights shares of Tayo Rolls Ltd and consequently, Tayo Rolls Ltd has become a subsidiary of the Company with effect from December 01, 2008.

In October 22, 2009, the company and Mineral and Metal Trading Company Ltd signed an agreement to establish a 74:26 joint venture company for acquiring, development and operation of mines and processing of minerals and metals.

During the financial year 2009-10, Hooghly Met Coke and Power Company Ltd was amalgamated with the company with effect from April 1, 2009. The construction of a warehousing shed and a building of a power receiving sub-station had started at one corner of the plant area. They increased the production capacity of Crude Steel from 61,10,000 tonnes to 68,00,000 tonnes, Saleable Steel from 58,40,000 tonnes to 65,00,000 tonnes and Welded Steel Tubes from 2,84,000 tonnes to 2,88,000 tonnes.

In October 2009, the company entered into an agreement with MMTC Limited, a Central Government undertaking and established a joint venture company for acquiring, developing and operating mines and processing of minerals and metals. In November 2009, they signed a Joint Venture Agreement with NML, to advance the development of the DSO Project. In January 2010, the company entered into an MoU with NMDC Ltd, to explore the possibility of acquisition, exploration and development of mines, extraction and processing of minerals, setting up integrated steel plants and other businesses of mutual interest.

In April 6, 2010, the company entered into an MoU with Nippon Steel Corporation (NSC), Japan for setting up a Continuous Annealing and Processing Line in Jamshedpur, India with 0.6 mtpa capacity. In

June 2010, the company subscribed to a private placement of Canadian \$20 million by NML pursuant to which Tata Steel Global Minerals Holding Pvt Ltd holds a 27.4% stake in NML.

In June 2010, the company and Tata Metaliks Ltd entered into an MoU with the Government of Karnataka on June 2010 for setting up an integrated steel plant of 3 metric tonnes per annum (MTPA) in Agadi and Boodagatti villages of Haveri District, Karnataka. In August 2010, the company's subsidiary Corus UK Ltd and Sahaviriya Steel Industries Public Company Ltd (SSI) signed an MOU which sets out the scope of a potential transaction whereby SSI would acquire from Corus the Teesside Cast Products (TCP) business in a transaction valued at approximately USD 500 million.

Tinplate Company of India Ltd became a subsidiary of the company with effect from April 01, 2011, consequent to increase in the company's shareholding in the Tinplate Company of India Ltd from 42.88% to 59.45%. This increase is due to automatic and compulsory conversion of 3% fully convertible debentures of Rs 100 each held by the company into equity shares on April 01, 2011.

In April 2011, the company and Krosaki Harima Corporation (KHC) signed definitive agreements to induct KHC as a strategic partner in Tata Refractories Ltd (TRL). Under this arrangement, KHC will acquire 51% equity stake out of TSLs current 77.46% stake in TRL. As per the scheme of amalgamation, Centennial Steel Company Ltd, a wholly owned subsidiary company was amalgamated with the Company with effect from September 27, 2011.

In January 2012, the company secured a contract from Siemens Wind Power to supply 25,000 tones of profiled steel plate for wind towers. Tata Steel will deliver 25,000 tones of profiled plate (cut into the desired shape) between April and September 2012.

The company is implementing an expansion project at Jamshedpur Works to increase its crude steel capacity from 6.8 million tonnes per annum to 9.7 million tonnes per annum. The facilities under this project are scheduled to be completed in FY 2011-12. Simultaneously, the Company is implementing a few other major capital schemes in Jamshedpur which include Coke Plant Battery No. 11, Coke Dry Quenching at Coke Ovens Batteries 5, 6 & 7 and a new mill for producing Full Hard Cold Rolled (FHCR) coils.

The company is also setting up a Continuous Annealing and Processing Line in Jamshedpur with a capacity of 0.6 mtpa under a joint venture company with Nippon Steel Corporation (NSC), Japan. The line will produce automotive cold rolled flat products and address the needs of Indian automotive customers for high grade cold rolled steel sheets.

The preliminary work on the 6 mtpa greenfield steel plant at Kalinganagar, Odisha is in progress.

Jindal Steel and Power Limited:

Jindal Steel and Power Ltd (JSPL) is one of India's major steel producers with a significant presence in sectors like Mining, Power Generation and Infrastructure. JSPL is a part of the about US \$ 15 billion diversified O. P. Jindal Group and is consistently tapping new opportunities by increasing production capacity, diversifying investments, and leveraging its core capabilities to venture into new businesses.

The company produces economical and efficient steel and power through backward integration from its captive coal and iron-ore mines. From the widest flat products to a whole range of long products, JSPL today sports a product portfolio that caters to varied needs in the steel market. The company also has

the distinction of producing the world's longest 121 meter rails and introducing large size parallel flange beams in India.

The company's segments include iron and steel; power, and others. The company's manufacturing plants are located at Raigarh in Chhattisgarh, Angul in Orissa and Patratu in Jharkhand. Its machinery division is located in Raipur. Its coal mines are located at Dongamahua and Tamnar, Chhattisgarh, iron ore mine at Tensa, Orissa and iron ore pelletisation plant at Barbil, Orissa.

Jindal Steel and Power Ltd was incorporated in the year 1979. In the year 1995, the company forayed into power sector and started a company namely, Jindal Power Ltd to engage the power sector. In May 1998, the Steel Melting Shop of the company was shut down due to the explosion. In the year 1999, as per the scheme of arrangement, the Raigarh and Raipur Divisions of Jindal Strips Ltd were hived off the company. In October 2009, they reopened the Steel Melting Shop and commenced operations.

In May 2000, the company commissioned Round Caster Unit set up in Raigarh and started producing Rounds, which import substitution product. Also, the company entered into an agreement with Maharashtra Seamless Ltd for selling 50,000 MT of Rounds annually. Also, they forayed into the Infotech sector and launched Infovergix Technologies.

In the year 2001, the company introduced a new value added product namely, Alloy Steel Rounds, which is used for the manufacture of seamless tubes. The company signed an MoU with the Chattisgarh government to invest Rs 6,400 crore in various projects in the state over the seven years.

During the year 2003-04, the company started manufacturing Universal beams and structures, in addition to manufacturing of value added steel products, such as, rounds, billets, blooms and slabs. In January 7, 2005, the company signed an MoU with Government of Chhattisgarh. In July 5, 2005, they signed an MoU with Jharkand Government. Also, they inked an agreement with S. African, German Company for coal gasification facility at their proposed six-million-tonne steel plant in Orissa.

In November 3, 2005, they signed a revised MoU was signed with the state Government of Orissa to increase production capacity of proposed steel plant from 2.00 million TPA to 6.0 million TPA. In the year 2006, the company inked a joint venture deal with Bolivia for El Mutun development.

In March 30, 2007, the company signed an MoU with the Government of Chhattisgarh for setting up 2 million TPA Cement plant and 30 MW Power Plant in Raigarh at an estimated cost of Rs 720 crore. In April 2007, the companys Plate Mill of 1.0 million TPA capacity was commissioned successfully and commenced commercial production. The company signed an MoU with the Government of Orissa for setting up a 6 Million TPA Integrated Steel Plant near Kerajang Railway Station in Angul District of State of Orissa at an estimated cost of Rs 16, 560 crore.

During the year 2010-11, the company commenced production in 0.6 MTPA capacity wire rod mill and 1.0 MTPA capacity bar mill, at Patratu, Jharkhand. The company through their 100% subsidiary Jindal Steel & Power (Mauritius) Limited, Mauritius (JSPLM), has acquired Shadeed Iron & Steel Co. LLC (SISCO), a Company incorporated under the laws of the Sultanate of Oman, in June 2010. The plant has been commissioned in record time and commercial operations started in December 2010, three months ahead of its schedule.

In May 2010, the company completed the modification in mini blast Furnace and commissioned the steel melting shop (SMS - III). The company synchronized the two units of 135 MW each under Phase - I in May and September 2010 respectively. In May 2010, the company completed the A 0.5 MTPA capacity slag grinding unit at Raigarh, Chhattisgarh. This plant is utilizing the slag produced by blast furnace I and II and clinker, purchased from outside, is mixed with slag to produce cement.

In January 2011, the company completed the 0.6 MTPA medium and light section mill at Raigarh, Chhattisgarh and commenced production. In March 2011, the company commissioned the first unit of 135 MW captive power plant in steel plant proposed to be set up at Angul, Orissa.

As of March 31, 2011, the company's installed capacity at its Raigarh Unit include: 13,70,000 metric tons of sponge Iron; 30,00,000 metric tons of mild steel; 36,000 metric tons of ferro alloys; 623 megawatts of power; 16,70,000 metric tons of hot metal/pig iron; 7,50,000 metric tons of rail and universal beam mill; 10,00,000 metric tons of plate mill, 60,000 metric tons of fabricated structures; 5,00,000 metric tons of cement plant and 6,00,000 metric tons of medium & light section mill.

In January 2012, the company commissioned the fourth unit of 135MW plant at Dongamahua, Raigarh, Chhattisgarh and second unit of 135 MW power plant at Angul, Orissa, with this total 6 units is commissioned in a series of 10 units of 135 MW. Jindal Steel Bolivia S.A (JSB), a subsidiary of the company, was allotted land for setting up of an integrated 1.7 MTPA steel plant, a 6 MTPA sponge iron plant, a 10 MTPA iron ore pellet plant and a 450 MW power plant.

The company is in the advanced stage of implementation of Steel Plant in Angul, Orissa. Also, the Captive Power Plant in Raigarh, Chhattisgarh is under implementation. The company is setting up an integrated steel plant in Patratu in the state of Jharkhand. The steel plant is expected to be commissioned in the second half of 2013.

The company is expanding production capacity of Machinery Division, Raipur, Chhattisgarh from 5,100 to 10,000 metric tons per annum. During the year, two sheds were completed and the CNC machines have been commissioned enhancing the production capacity to 9,000 metric tons per annum. During the financial year 2011-12, two more sheds will be constructed in which cranes will be installed, thereby increasing the production capacity to 10,000 metric tons per annum.

SAIL:

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

They are also among the five Maharatnas of the country's Central Public Sector Enterprises. The company manufactures and sells a broad range of steel products, including hot and cold rolled sheets and coils, galvanized sheets, electrical sheets, structurals, railway products, plates, bars and rods, stainless steel and other alloy steels. They produce iron and steel at five 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.

The company's wide range of long and flat steel products is much in demand in the domestic as well as the international market. The company's International Trade Division (ITD), in New Delhi- an ISO

9001:2000 accredited unit of CMO, undertakes exports of Mild Steel products and Pig Iron from SAILs five integrated steel plants. With technical and managerial expertise and know-how in steel making gained over four decades, the company Consultancy Division (SAILCON) at New Delhi offers services and consultancy to clients world-wide.

The company 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 in the steel industry. Besides, they have their own in-house Centre for Engineering and Technology (CET), Management Training Institute (MTI) and Safety Organisation in Ranchi.

The Government of India owns about 86% of the company's equity and retains voting control of the company. However, SAIL, by virtue of their "Maharatna" status, enjoys significant operational and financial autonomy.

Steel Authority of India Ltd was incorporated on January 24, 1973. The Ministry of Steel and Mines drafted a policy statement to evolve a new model for managing industry. The policy statement was presented to the Parliament on December 2, 1972. On this basis the concept of creating a holding company to manage inputs and outputs under one umbrella was mooted. This led to the formation of Steel Authority of India Ltd. The company was made responsible for managing five integrated steel plants at Bhilai, Bokaro, Durgapur, Rourkela and Burnpur, the Alloy Steel Plant and the Salem Steel Plant.

In the year 1974, SAIL International Ltd was incorporated to coordinate the export and import business. In the year 1976, Durgapur Mishra Ispat Ltd, Bhilai Ispat Ltd, and Rourkela Ispat Ltd were formed as fully owned subsidiaries of the company for taking over the running business of Alloy Steels Plants, Bhilai steel Plant and Rourkela Steel Plant. In the year 1978, the company was restructured as an operating company. In the year 1982, the Salem Steel Plant was inaugurated in Salem in Tamil Nadu. The number of technological improvement schemes was undertaken during the year 1985, the most notable thing was the conversion of open-hearth furnace No.10 into the twin hearth furnace. A year after, in 1986, all the Phase-I units under the plants 4 million tonnes expansion programme were commissioned. A vacuum arc-degassing unit was started in the converter shop and a second normalizing furnace in plate mill was added.

In the year 1988, Visvesvaraya Irons & Steel Co Ltd became a subsidiary of the company by acquisition of 60% of the shares. Also, Bhilai Steel Plant set up a blast furnace bell-less top charging system. In the year 1990, the company made a modernisation programme to revamp and technologically upgrade the plant. After the modernisation the plant slated for a crude steel capacity of 1.9 million TPA.

In the year 1992, the company's R&D unit at Ranchi was set up with a view to promote continuous improvement in critical performance indices of the steel plant in order to increase productivity, reduce production cost and improve quality by production optimization or by introduction of new technologies. In the year 1993, the company launched the consultancy division with a view to harness the resources and expertise in steel related areas and market engineering, technical, managerial and training services.

In the year 1994, two major schemes, namely. New sinter plant III and expansion of oxygen plant II were taken up for implementation. Also, C.O. Battery No. 10 was commissioned during the year. At Rourkela steel plant, five of phase II modernisation packages viz. power distribution, mobile equipment for RMHS, II sizing plant at Satara and Tarkera intake facilities and make-up water pump houses for

Tarkera works were commissioned. In the year 1995, the company ventured into setting up a power project at Bhilai by the form joint venture with Larsen & Toubro and CEA, USA Inc. In the year 1997, the modernisation of rail & structural mill (stage 1-phase) was commissioned.

In the year 1999, the company made a marketing tie up with Tyazprom export (TPE) of Russia to sell the entire range of castings and pig iron produced by Kulti Works, a division of Indian Iron and Steel Company (IISCO). In the year 2000, the company signed a MoU with Egypt's public sector Metallurgical Industries Corporation (Micor) for the establishment of a modern technical and management training centre for the Egyptian steel industry. They launched a new millennium special media campaign to hard sell its wide range of products. The Durgapur Steel Plant of the company commissioned the computerised integrated production planning and control (PPC) system that helps in practically every aspect of plant operation and dispatch. The company, Tata Steel and Kalyani Steels Ltd entered into an agreement for creation of an Internet-based global, independent B2B Steel Market place.

During the year 2002-03, the company implemented major projects which includes up gradation of BF-3 with increase in useful volume and installation of INBA Cast House Slag Granulation Plant at BF-3 at DSP, installation of De-scaling Unit before 950 mm Roughing Stand of Rail & Structural Mill of BSP and installation of Combined Blowing Technology in Converter No. 2 at SMS-II of BSL. During the year 2004-05, the company entered into an agreement with GAIL for supply of natural gas for its integrated steel plants. They signed an MoU with KIOCL for joint development of some iron ore mines of the company. They received the prestigious SCOPE Gold Trophy for Excellence and Outstanding Contribution to the Public Sector Management-Institutional category for the year 2004-05. The company bagged, "Business world-FICCI-SEDF Corporate Social Responsibility Award - 2006".

During the year 2006-07, the company undertook a massive modernization and expansion plan with an indicative cost of over Rs. 40,000 crore to expand capacity of hot metal to over 25 million tonnes from current level of 14.6 million tonnes. They introduced several new products in the domestic market, namely HCR-EQR TMT for earthquake resistant construction, rock bolt TMT for tunnel construction, EN series HR coils for LPG cylinders, MC 12 HR coils for chains etc. In addition, Bhilai Steel Plant developed high strength vanadium rails; Durgapur Steel Plant produced S-profile loco wheels for high-speed locos and Rourkela Steel Plant rolled special plates, which were used, in the indigenously built rocket PSLV C-7. During the year 2007-08, the company in association with Tata Steel Ltd formed a joint venture company to mine coal blocks for securing assured coking coal supply to meet their increasing production needs.

During the year 2008-09, the company incorporated new joint venture companies namely "SAIL & MOIL Ferro Alloys Pvt Ltd." and "S&T Mining Co Pvt Ltd". They signed a Joint Venture Agreement signed with Govt. of Kerala (GoK) to acquire equity stake in Steel Complex Ltd (SCL), Kozhikode, a Govt. of Kerala Undertaking. Also, they signed an MoU with Shipping Corporation of India (SCI) for proposal for incorporation of a joint venture company for carrying out transportation of imported coking coal & dry bulk shipping trade.

During the year, the company signed an MoU with Larsen & Toubro Ltd (L&T) for setting up captive / independent power plants(s) under joint venture using super-critical technology alongwith opportunities to own captive thermal coal blocks. They entered into an MoU with M/s. Rajasthan State Mines & Minerals Ltd. (RSMML) - A Govt. of Rajasthan Undertaking, to ensure supply of Low Silica

Limestone for a period of 10 years. Also, they entered into an MoU with Bharat Earth Movers Ltd (BEML), Bangalore - a Ministry of Defence Undertaking for a period of 3 years, for supply of Heavy Earth Moving Equipment.

During the year 2009-10, the company added two warehouses and two customer contact offices to their distribution network. With this, the company's marketing network has expanded to 37 branch sales offices (BSOs), 26 customer contact offices (CCOs) and 67 Warehouses. The company also expanded their dealer network by appointing 700 dealers during the year.

In July 28, 2009, Bharat Refractories Ltd was amalgamated with the company with effect from April 1, 2007. After amalgamation, erstwhile BRL, became a unit of SAIL and renamed as SAIL Refractory Unit (SRU). Also, the company acquired the assets of Malvika Steel Limited at Jagdishpur in Uttar Pradesh during the year. In August 2010, the company started hot trials at Salem Steel Plant (SSP) after expansion. In May 19, 2010, the Government of India accorded the status of "Maharatna" to the company.

During the year 2010-11, all major facilities under expansion plan of Salem Steel Plant completed on schedule in September 2010 and are under stabilization for regular production. In July 2010, Blast Furnace unit 2 at Bokaro Steel Plant was upgraded & commissioned. They completed upgradation of Plate Mill at Bhilai Steel Plant, installation of 700 tonne per day Oxygen Plant & simultaneous blowing of converters in SMS-II at Rourkela Steel Plant, and rebuilding of Coke Oven Battery #10 at IISCO Steel Plant, Burnpur.

During the year, Maharashtra Elecktosmelt Ltd (MEL) was amalgamated with the company with effect from April 1, 2010, MEL became a unit of the company and it was renamed as Chandrapur Ferro Alloy Plant. In June 2010, Cabinet Committee on Economic Affairs (CCEA) approved transfer of Salem Refractory Unit of Burn Standard Company Ltd to the company.

In December 2010, the company signed an MoU with RITES and incorporated an joint venture company, SAIL RITES Bengal Wagon Industry Pvt Ltd for undertaking a feasibility study for setting up the Wagon Manufacturing Factory. The work of the newly incorporated joint venture company between SAIL and RITES has already commenced. In February 13, 2011, the company formally acquired 50% of the shares held by the Government of Kerala (GoK) in Steel Complex Limited (SCL), Kozhikode and taken over the operations of SCL.

In 2012, With an aim to provide impetus to its massive modernisation programme, the company which is a fully integrated iron and steel maker, producing both basic and special steels for domestic and for sale in export markets has inked a Memorandum of Understanding (MOU) with Swiss based company ABB which deals in robotics and automation technologies for the purpose of offering technical training to more than 4,000 of its employees during a period of 24 months. The company also signed a 50:50 joint venture agreement with Burn Standard Company Limited (BSCL) at Kolkata for setting up a Wagon Components Manufacturing Facility at the premises of BSCL at Jellingham, Purba Medinipore district, in West Bengal, with a capacity to produce 10,000 bogies and 10,000 couplers per annum. The company was also conferred with, MoU Excellence Award for the year 2010-11 for the 9th consecutive year.

In 2013, the company won PSE Excellence Award-2013 for CSR & Sustainability and SAIL Bhilai Steel Plant bags the National Energy Conservation Award 2013.

In 2014, ICVL acquires Rio Tintos 2.6 Billion Tonnes coal resource in Mozambique. AIL awarded Good Corporate Citizen Award 2014 by PHD Chamber. The companies Bhilai Steel Plant wins National Energy Conservation Award 2014. A New Sinter Plant and Coke Oven Battery at Bhilai was inaugurated during the year.

In 2015, the company has completed the current phase of the modernization and expansion of the Bokaro Steel Plant with an investment of Rs 6,325 crore. The company also signed MOU with M/s. ArcelorMittal for Auto Body Steel Production. The company also has set up a steel processing unit at Billawa in Madhya Pradesh under partnership between SAIL and Prime Gold Pvt Ltd. The company has won an export contract to supply rails for modernization and major expansion of railway network in Iran. SAILs Rourkela Steel Plant (RSP), also has set up power generation unit during the year under review.

Analyses and Interpretations:

To calculate risk, return and correlation. The one year data was collected from NSE India on daily bases. The market risk and stock risk were considered in the calculation of risk, the market return and stock return were considered in the calculation of return and to calculate correlation between market and stock the each day's closing price was considered.

Table No.: 1

Risk and Return Analysis of Tata Steel Limited

Month	Risk	Mean	Correlation
Nov. 2016	0.28	403	0.56
Dec. 2016	0.32	407	0.75
Jan. 2017	0.13	441	0.41
Feb. 2017	0.23	475	0.67
Mar 2017	0.14	486	0.62
Apr 2017	0.15	468	0.51
May 2017	0.11	468	0.41
Jun 2017	0.09	509	0.32
Jul 2017	0.13	557	0.45
Aug 2017	0.24	612	0.66
Sep 2017	0.28	663	0.72
Oct 2017	0.16	701	0.60

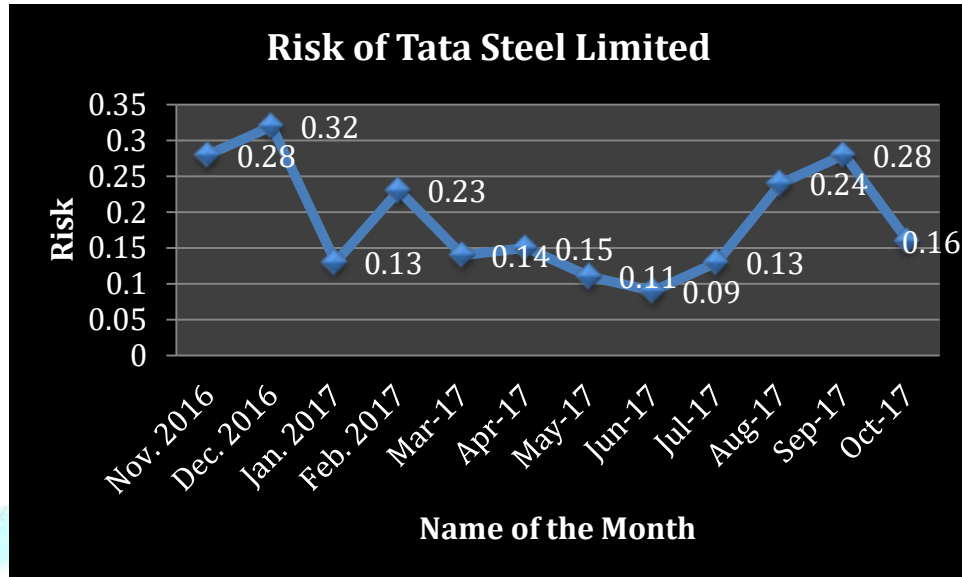
Source: Nifty return report

Interpretation:

From the above table it is depicted that, the risk and return analysis of Tata Steel Limited during the period between 1st Nov. 2016 and 30th Oct. 2017. The risk which is also considered as the beta of the portfolio average was 0.18. Since the demonetization stock was performed extremely very well. The return on the stock was almost 72 percent. The correlation between the market and stock was relatively positive in an entire year.

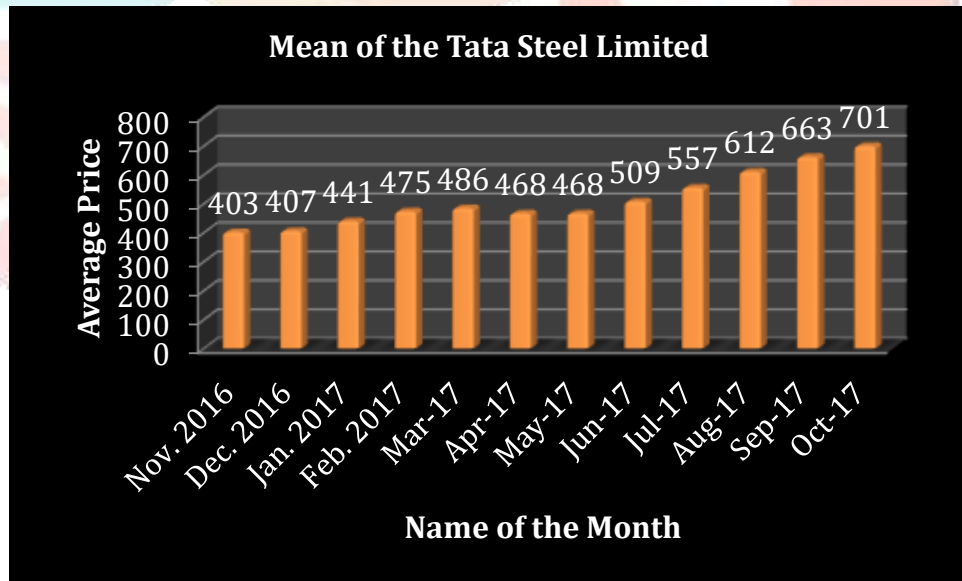
Graph No. 1

Risk of Tata Steel Limited



Graph No. 2

Mean of Tata Steel Limited



Inference:

From the above graph it is depicted that, the risk and mean of the Tata Steel Limited, the risk of the security was more than the market return. The mean of the security was increased drastically during the period.

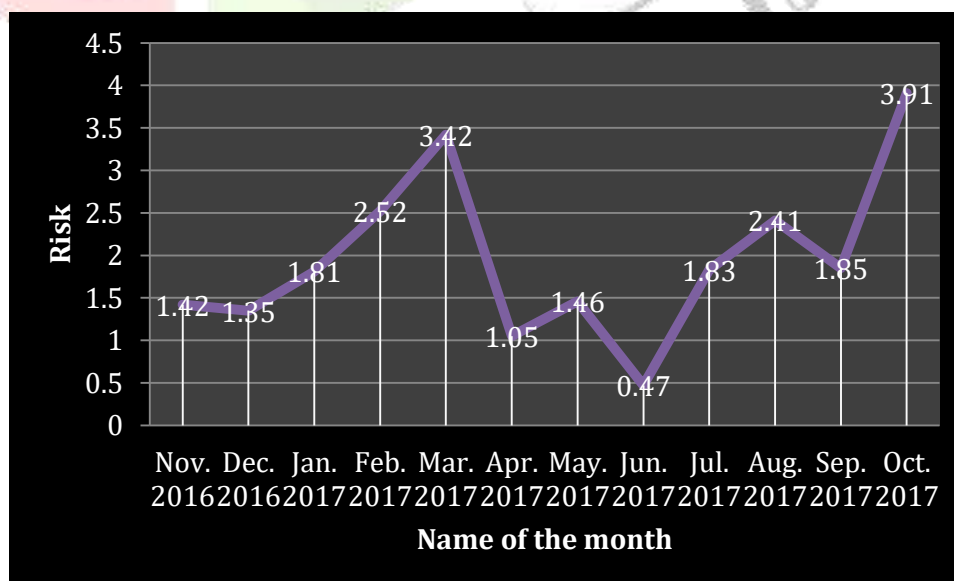
Table No.: 2**Risk and Return Analysis of Jindal Steel and Power Limited**

Month	Risk	Mean	Correlation
Nov. 2016	1.77	70	0.64
Dec. 2016	1.64	71	0.52
Jan. 2017	2.91	77	0.53
Feb. 2017	2.17	98	0.32
Mar 2017	1.32	124	0.23
Apr 2017	2.03	120	0.36
May 2017	3.28	115	0.62
Jun 2017	1.68	122	0.31
Jul 2017	2.23	139	0.27
Aug 2017	4.20	137	0.56
Sep 2017	3.50	142	0.75
Oct 2017	2.60	158	0.41

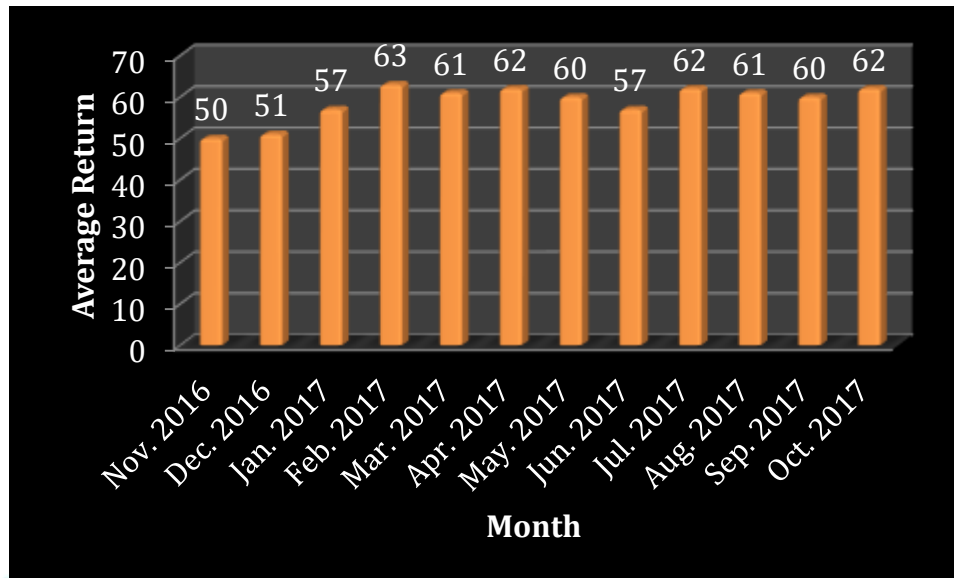
Source: Nifty return report

Interpretation:

From the above table it is depicted that, the risk and return analysis of Jindal Steel and Power Limited during the period between 1st Nov. 2016 and 30th Oct. 2017. The risk which is also considered as the beta of the portfolio average was 2.44. Since the demonetization stock was performed extremely very well. The return on the stock was almost 126 percent. The correlation between the market and stock was relatively positive in an entire year.

Graph No. 3**Risk of Jindal Steel and Power Limited****Graph No. 4**

Mean of Jindal Steel and Power Limited



Inference:

From the above graph it is depicted that, the risk and mean of the Jindal Steel and Power Limited, the risk of the security was more than the market return. The mean of the security was increased drastically during the period.

Table No.: 3

Risk and Return Analysis of Steel Authority of India Limited

Month	Risk	Mean	Correlation
Nov. 2016	1.42	50	0.81
Dec. 2016	1.35	51	0.47
Jan. 2017	1.81	57	0.48
Feb. 2017	2.52	63	0.61
Mar. 2017	3.42	61	0.66
Apr. 2017	1.05	62	0.26
May. 2017	1.46	60	0.37
Jun. 2017	0.47	57	0.16
Jul. 2017	1.83	62	0.40
Aug. 2017	2.41	61	0.61
Sep. 2017	1.85	60	0.65
Oct. 2017	3.91	62	0.38

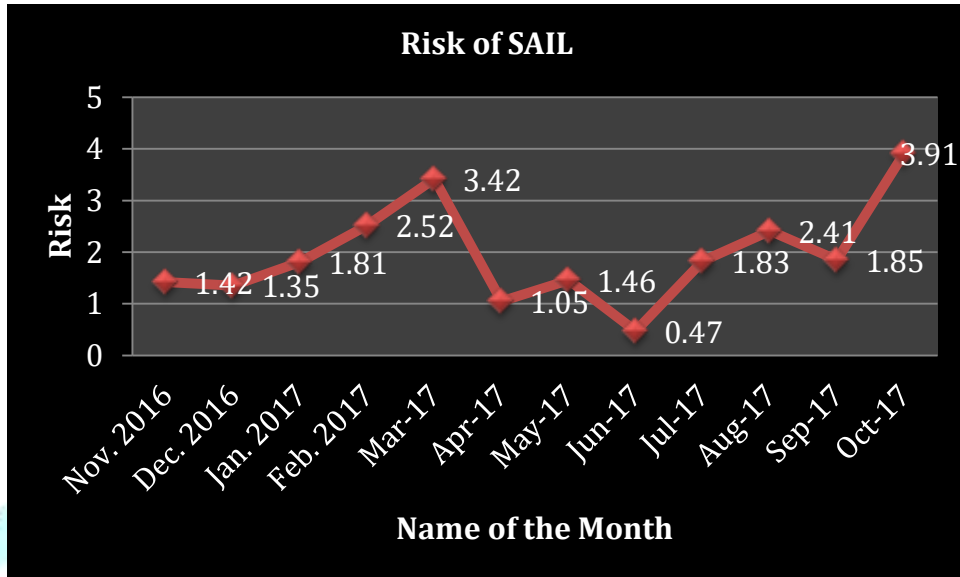
Source: Nifty return report

Interpretation:

From the above table it is depicted that, the risk of Steel Authority of India Limited was more than the market risk, the average risk for the period was 1.96. The return during the period was 24 percent. The average correlation value was 0.48.

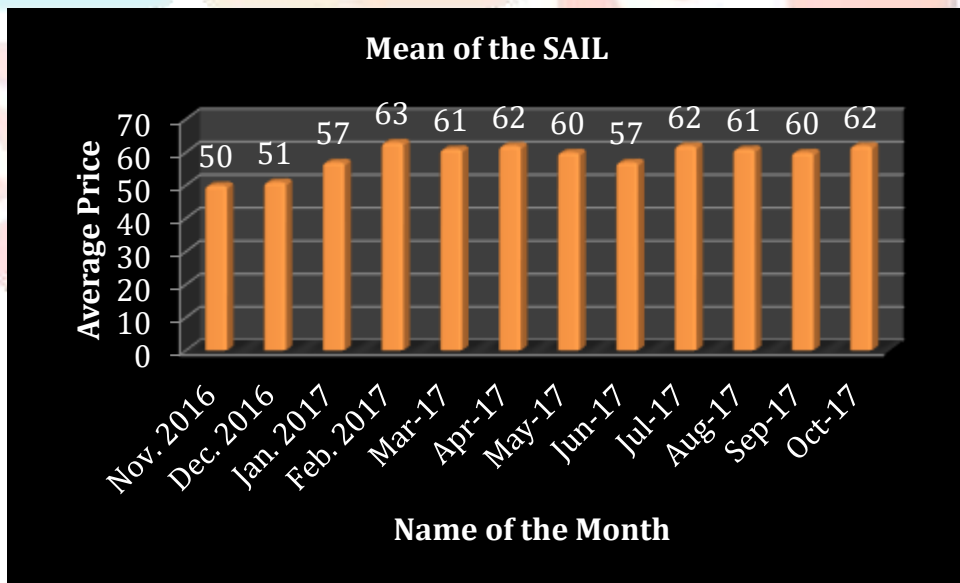
Graph No. 5

Risk of Steal Authority of India Limited



Graph No. 6

Mean of Steal Authority of India Limited



Inference:

From the above graph it is depicted that, the risk and mean of the Steel Authority of India Limited, the risk of the security was more than the market return. The mean of the security was increased drastically during the period.

Limitations of the Study:

1. The study is limited to only 3 steel stocks listed under the Nifty.
2. The data cover only for the period of one year from 01.11.2016 to 30.10.2017.

Conclusion:

Post demonetization the stock prices of all the steel companies was increased drastically. It gave good returns to investors over a period of one year from 1st Nov. 2016 to 30th Oct. 2017. It will be going to continue in future.

References:

- Naveen, Shalini and Mallikarjunappa, T. (2016), A Study on Comparative Analysis of Risk and Return with reference to Stocks of CNX Bank Nifty, *International Journal of Scientific Research and Modern Education*, 1 (1), pp. 737 – 743.
- Pamane, Kolani, and Vikpossi, Anani Ekoue. (2014), An Analysis of Relationship between Risk and Expected Return in the BRVM Stock Exchange: Test of the CAPM, *Research in World Economy*, 5 (1), pp. 13 – 28.

