

Introduction

The Mining and Minerals sector is one of the core sectors that drive economic growth of the country. India has been eminently and enormously endowed with minerals as a gift of nature. The country currently produces nearly 89 minerals under different groups such as fuel minerals, metallic minerals, non-metallic minerals, atomic minerals and minor minerals. Of the total, 4 are fuel minerals, 11 metallic, 52 non-metallic and 22 minor minerals (including building and other materials). In the country, 80% of mining is in coal and the balance 20% is in various metals and other raw materials such as gold, copper, iron, lead, bauxite, zinc and uranium. The mining sector (including fuel, atomic, major and minor minerals) contributed about 2.4% of gross domestic product (GDP) in 2014'15 and the non'coal & non'fuel minerals contributed 0.76 % of GDP. The sector not only contribute to GDP, but it also acts as a catalyst for the growth of other core industries like power, steel, cement, etc., which, in turn, are critical for the overall development of the economy.

Minerals

Minerals provide the raw material for industrial- based society; roads, cars, computers, fertilizers, etc. Demand for minerals is increasing world wide as the population increases and the consumption demands of individual people increase. A mineral is a pure inorganic substance that occurs naturally in the earth's crust. All of the Earth's crust, except the rather small proportion of the crust that contains organic material, is made up of minerals. Some minerals consist of a single element such as gold, silver, diamond (carbon), and sulphur. More than two-thousand minerals have been identified and most of these contain inorganic compounds formed by various combinations of the eight elements (O, Si, Al, Fe, Ca, Na, K, and Mg) that make up 98.5% of the Earth's crust. Industry depends on about 80 of the known minerals. Minerals are valuable natural resources being finite and non-renewable.

Types of Minerals

Fuel Minerals: Fuel minerals like coal, oil and natural gas are of prime importance as they account for nearly 87% of the value of mineral production whereas metallic and non-metallic constitutes 6 to 7%. Coal, oil and natural gas are the basic fossil fuel. India has good reserves for coal but lower reserves of essential fuel - oils and natural gas.

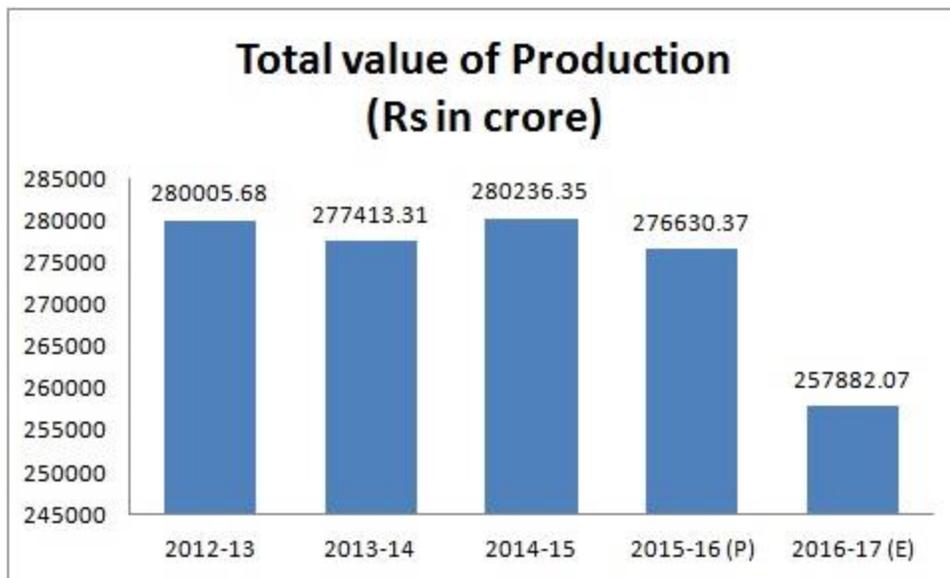
Metallic minerals: A metallic mineral presents a metallic shine or luster in appearance. They contain metals in their chemical composition. These mineral contain metal in raw form. Iron ore, bauxite, manganese ore are examples of metallic minerals. Metallic minerals are divided into two parts that is ferrous minerals contain iron and non-ferrous minerals do not contain iron that is gold, silver, copper and lead.

Non-metallic minerals: Non-metallic minerals yield products and other metals such as phosphorus, rocks, clay, salt, diamond, granite, graphite etc. The non-metallic mineral lacks metallic shining and has high melting point. Besides, rocks, stones, and soils are being used as the construction materials. Some examples are building stones like sandstone, quartz, limestone,

facing stones and roofing stone like granite, marble, basalt etc. Moreover, some mineral resources are used in the manufacture of different commodities by the chemical fertilizer.

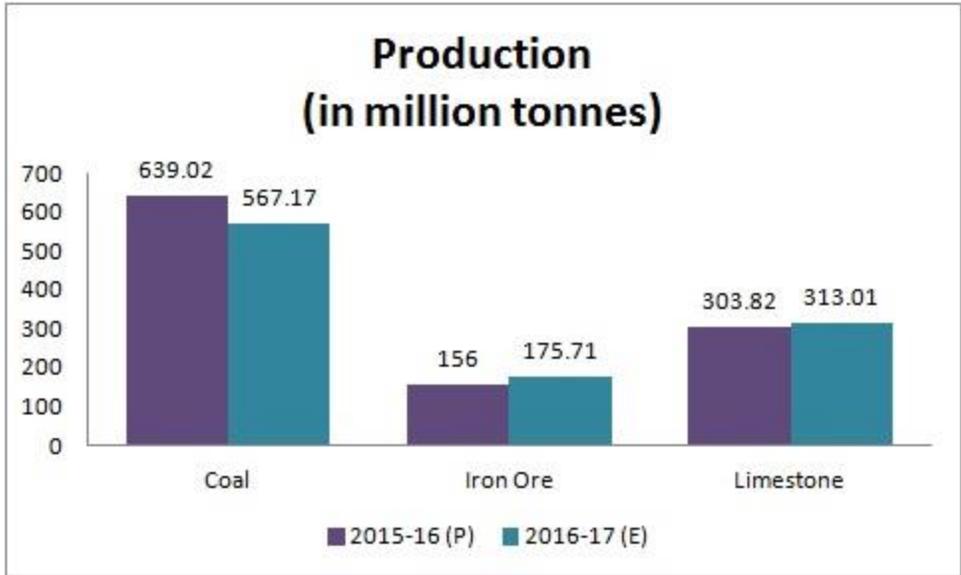
Total Minerals Production

The total value of mineral production (excluding atomic minerals) during 2016-17 was estimated at Rs 257,882 crore, which shows a decrease of about 6.78% over Rs 276,630.37 crore for the previous year 2015-16, estimated value for fuel minerals account for Rs 178,953 crore or 69.39%, metallic minerals, Rs 29,163 crore or 11.31% and non-metallic minerals including minor minerals Rs 49,767 crore or 19.30% of the total value. During 2016-17, mineral production was reported from 34 States/Union Territories of which the bulk of value of mineral production of about 92.56% was confined to 13 States (including off shore areas).



Coal: Coal is a combustible sedimentary rock composed mostly of carbon and hydrocarbons. Coal is primarily used as a solid fuel to produce electricity and heat through combustion. It is the largest source of energy for the generation of electricity worldwide, as well as one of the largest worldwide anthropogenic sources of carbon dioxide releases. The coal production in India expected at 567.17 million tonnes (MT) for 2016-17.

Iron Ore: Being the most important raw material for the steel industry, iron ore commands significant importance as a basic raw material used in the making of pig-iron, sponge iron, steel and alloy steel. The other important iron ore consuming industries are cement, coal washeries and ferroalloy industries. Besides, the country has around 8% of world's deposit of iron ore. Iron ore production in the country stood at 156 MT for 2015-16 and it is estimated to increase to 175.71 MT in 2016-17.



Limestone: Limestone occupies the top position among non-fuel solid mineral deposits as per volume of annual extraction. The mining of about 250 MT of limestone for the cement industry is only next to coal. Limestone is the primary constituent for the manufacture of cement. The Limestone production is increasing from past three years, as it stood at 303.82 MT in 2015-16 and estimated to touch 313.01 MT in 2016-17.

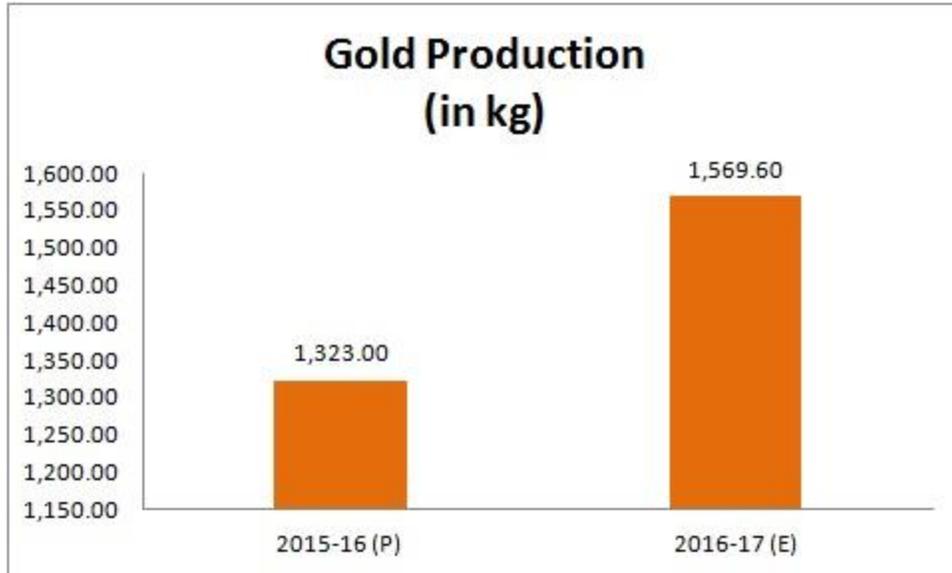
Bauxite: Bauxite is the only ore used for commercial production of aluminium using the Basic Bayer process for alumina refining and Hall-Heroult process for aluminium smelting. After slow growth for over a long period, there has been all round improvement in the growth of the aluminium sector. The production of bauxite has increased in last four years but for the year 2016-17 the estimation was 25,212.35 thousand tonnes, lower by 10.38% as compared to previous year.

Chromite/Chrome Ore: Chromite is an oxide of chromium and iron with chemical composition $FeO \cdot Cr_2O_3$ or $FeCr_2O_4$ and containing Cr:Fe ratio of about 1.8:1. Chromite is used mainly in metallurgical industry for manufacture of ferro-alloys e.g. ferro-chrome, charge-chrome and silico-chrome which are used as additives in making stainless steel and special alloy steel as well as mild steel. The Chromite has shown very fluctuating trend during last four years. The production was estimated at 2,776.10 thousand tonnes for 2016-17, down by 4.07%, as compared to 2,894.00 thousand tonnes in previous year.

Copper Ore: Copper ranks third in terms of tonnage consumption after iron and aluminium. Copper is a strategic metal essential for development. It is acclaimed for its conductivity and anti-bacterial quality as well as for production of important alloys such as brass and bronze. The electrical industry is by far the largest consumer of copper in the country. The production of copper ore increased in last four year but in the year 2016-17 is expected at 117.24 thousand tonnes, down by 18.01% from 143 thousand tonnes in 2015-16.

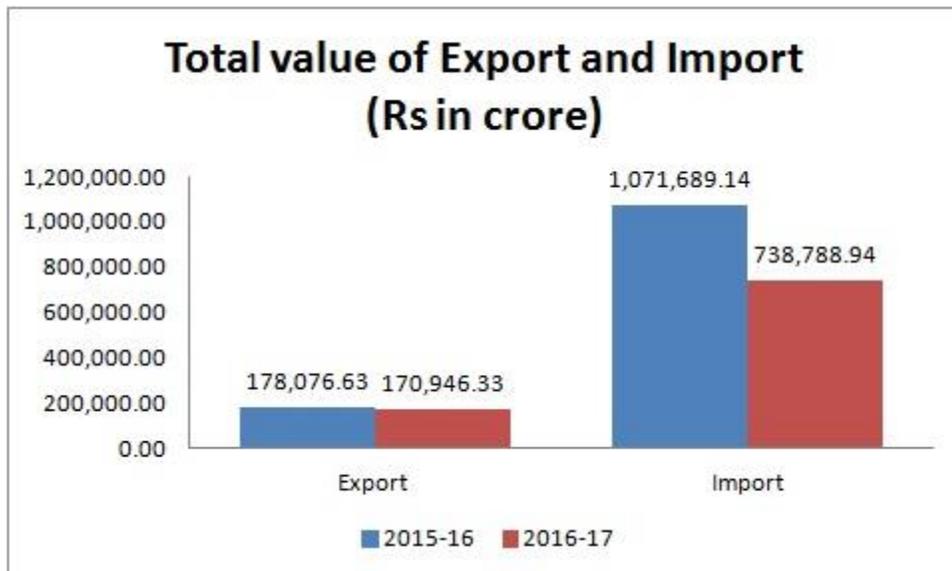
Zinc Ore: Zinc is the third most used non-ferrous metal after aluminium and copper. Globally, about 50% of the zinc produced is used in galvanizing of steel products to protect them from corrosion. Lead is frequently recovered as a by-product of lime production. Over 80% of all lead produced is used in making lead-acid batteries for storage of energy.

High Value Precious Metals: Precious metals market includes gold, silver, platinum, palladium, rhodium and diamond. The gold production is expected to jump 1569.60 kg for the year 2016-17 as against 1,323.00 kg produced in the year 2015-16.



Export and Import of Minerals

The total value of export is expected to decrease for the year 2016-17 to Rs 170,946.33 crore as compared to Rs 178,076.63 crore for the year ended March 2016, down by 4%. On the other hand, the value of import is also estimated to drop by 31.06% to Rs 738,788.94 crore for the year ended March 2017, as compared to Rs 1,071,689.14 crore for the previous year.

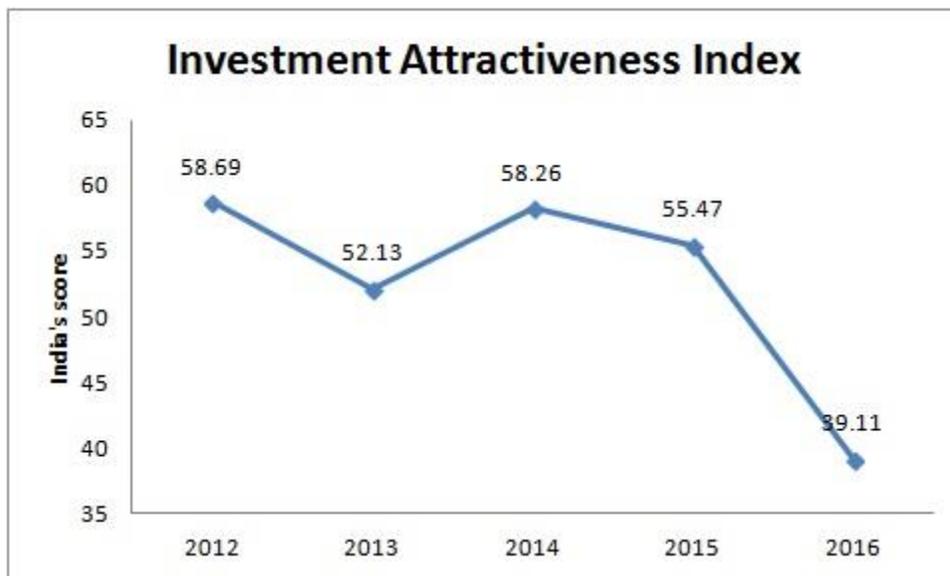


Growth Drivers

- **Boom in infrastructure:** The boom in infrastructure would give rise to tremendous demand for base metals. As base metals are the key to the foundation of any metal, the spurt in economic activity would give a boost to the base metals market in India.
- **Demand growth:** Rise in infrastructure development & automotive production driving growth in the sector, Power and cement industries will also aid growth in the metals & mining sector and demand for iron & steel is set to continue, given the strong growth expectations for the residential & commercial building industry.
- **Policy support:** 100% foreign direct investment (FDI) allowed in the mining sector and exploration of metal and non metal ores under the Automatic Route. Approval of MMDR Bill (2011) to provide better legislative environment for investment & technology and under the Union Budget 2016-17, the Government changed customs & excise duty on certain mineral fuels & mineral oils.

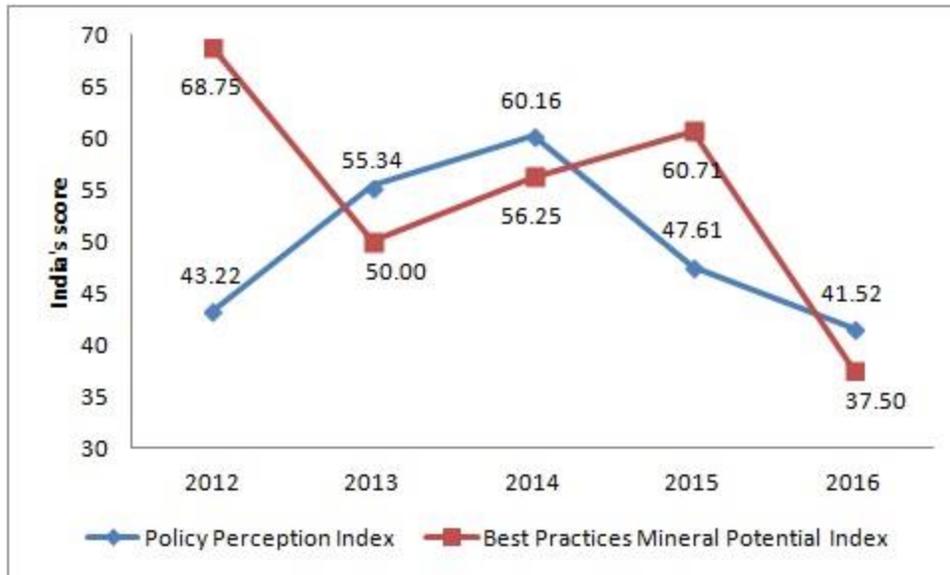
Investment Attractiveness Index

The Fraser Institute's annual survey of mining and exploration companies for 2016 ranked India 97th out of 104 jurisdictions based on the overall investment attractiveness index. India has slipped from its previous rank of 73 in 2015 (out of 109) in overall investment attractiveness index and has been placed with Afghanistan, Zimbabwe and Mozambique among the lowest 10 countries. The main reasons behind India's poor show are low score in policy perception, uncertainty concerning the administration, interpretation and enforcement of existing regulations, regulatory duplication, inconsistencies and multiple taxes, legal system and uncertainty concerning disputed land claims. However, India's rank is relatively better in conditions like uncertainty concerning environmental regulations, quality of infrastructure and political stability.



The Investment Attractiveness Index is a composite index that combines both the Policy Perception Index and results from the Best Practices Mineral Potential Index. While it is useful to measure the attractiveness of a jurisdiction based on policy factors such as onerous regulations, taxation levels, the quality of infrastructure, and the other policy related questions respondents answered, the Policy Perception Index alone does not recognize the fact that investment decisions are often sizably based on the pure mineral potential of a jurisdiction. To

get a true sense of which global jurisdictions are attracting investment, mineral potential must also be considered.



The index was weighted 40 percent by policy and 60 percent by mineral potential. These ratios are determined from a survey question that asks respondents to rate the relative importance of each factor. It maintains a 60/40 ratio in calculating this index to allow comparability with other years. The Policy Perception Index is used to provide the data on the policy perceptions of various jurisdictions. Meanwhile, the rankings from the Best Practices Mineral Potential Index, which is based on the percentage of responses for 'encourages investment' and a half-weighting of the responses for 'not a deterrent to investment,' is used to provide data on the mineral potential.

A limitation of this index is that it may not provide an accurate measure of the investment attractiveness of a jurisdiction at extremes, or where the 60/40 weighting is unlikely to be stable. For example, extremely bad policy that would virtually confiscate all potential profits, or an environment that would expose workers and managers to high personal risk, would discourage mining activity.

Government Initiatives

National Mineral Exploration Policy: The Union Cabinet approved the National Mineral Exploration Policy (NMEP). The NMEP primarily aims at accelerating the exploration activity in the country through enhanced participation of the private sector. There is a need for comprehensive mineral exploration of the country to uncover its full mineral potential so as to put the nation's mineral resources (non-fuel and non-coal) to best use and thereby maximize sectoral contribution to the Indian economy. The policy emphasizes on making available baseline geo-scientific data of world standards in the public domain, quality research in a public-private partnership, special initiatives for search of deep-seated and concealed deposits, quick aerogeophysical surveys of the country, and creation of a dedicated geo-science database etc.

Mining surveillance system: In a path-breaking move, the mines ministry came out with mining surveillance system (MSS), a pan-India surveillance network using latest satellite technology, to

check illegal mining. MSS is a satellite-based monitoring system, which aims to check illegal mining activity through automatic remote-sensing detection technology. Karnataka, which saw large instances of illegal mining in the past, stands to gain tremendously from this technology. This technology will help to design planned development of mining as also provide complete data of labourers working in the sector online, which will lead to better safety standards.

Opening up commercial mining of coal: The government will open up commercial mining of coal in fiscal year 2017-18 and four dry fuel mines will go under the hammer in the first phase. In fiscal year 2017-18, in coal sector, the government will allocate 25 mines. Of these, 2 will be allotted and 23 will be auctioned, some for the coking coal and some for sectors other than power, like cement and four for commercial mining. Commercial mines are allotted without specifying the end use and allow private miners to sell the fuel to buyers across sectors such as power, cement and steel.

Auction of mineral blocks: Government said that 2017-18 would be the most important year for the mining industry as leases of around 300 mineral blocks would be auctioned during the fiscal and the fiscal 2017-18 will see a very big change in allocation of mining leases. So far, around 21 mining leases have already been auctioned and these mineral blocks have a cumulative resource value of around Rs 94,000 crore. The blocks to be available for auction in future which are being explored under National Mineral Exploration Trust (NMET) or by GSI or by MECL are being explored by entities under the New Exploration Policy.

Rewarding exploration companies: In order to give a boost to mineral exploration, the government devised a new scheme for rewarding exploration companies with an upfront payment based on the reserve value of the minerals they are able to establish. Secretary in the ministry of mines said the payment will be either 0.5% of the reserve value (value of recoverable resources) or 10 times the monthly retention fee for the explorer. The payment that the government makes from its own resources will be recovered from the winning bidder when the block is subsequently auctioned for mineral production based on the explorer's data. Assigning exploration activity to one entity for a fee and auctioning the block subsequently backed by data on the mineral wealth is expected to increase the interest among private players for both the activities. If the block is offered for both in one go, only those investors with deep pockets to invest in production of minerals and take exposure to commodity price volatility will come forward.

Open acreage approach: The Ministry of Mines is evaluating the possibility of the open acreage approach for mineral exploration in the country. This proposal is in line with the Open Acreage Licensing Policy introduced by the Ministry of Petroleum and Natural Gas. The calls for an open acreage licensing (OAL) model in mineral exploration gained momentum after the Oil Ministry enabled the same for petroleum and natural gas in the country. The OAL approach will allow explorers to monetise any minerals that are excavated from a contracted area. The government will call bids on the portion of the revenue proceeds from the sale of such minerals.

Outlook

The overall production of Minerals in the country is estimated to decline in the year 2016-17 as compared to the previous year, but government's initiatives like mining surveillance system to check illegal mining and open acreage approach for mineral exploration are expected to provide flip to the Mining and Minerals industry in the long term. The Government is also intensifying its efforts to increase the country's mineral production by implementing changes to its mineral exploration policy and by attracting foreign investment into its mineral industry. With this, India is likely to continue to be largely self-sufficient in the minerals and metals that constitute the primary raw materials for its various industries. Moreover, in the next few years, the production of steel is expected to increase, aluminum & alumina companies and cement plants are expected to continue increasing their production capacities.

Companies Financial Data In Industry

Company Name	CMP	MCAP	BOOK VALUE	DIV. YIELD %	TTM EPS	TTM PE
Sandur Manganese & Iron Ores Ltd.	837.85	733.12	498.38	0.24	73.23	11.44
MOIL Ltd.	401.90	5352.82	217.97	1.24	26.76	15.02
Coal India Ltd.	259.90	161330.56	22.48	7.66	23.41	11.10
Gujarat Mineral Development Corporation Ltd.	148.00	4706.40	129.51	2.03	11.08	13.36
NMDC Ltd.	131.90	41731.72	74.24	3.90	9.00	14.66
EICL Ltd.	47.15	237.05	28.18	2.12	5.35	8.82
Orissa Minerals Development Company Ltd.	1791.50	1074.90	1401.21	0.15	5.17	346.30
Raghav Ramming Mass Ltd.	134.00	96.21	25.79	0.00	3.53	37.92
Sandur Manganese & Iron Ores Ltd.	837.85	733.12	498.38	0.24	73.23	11.44
20 Microns Ltd.	39.00	137.62	28.30	0.00	3.08	12.66
Inani Marbles & Industries Ltd.	24.75	40.25	25.96	0.16	0.82	30.31
KIOCLtd	196.55	12471.37	33.22	0.06	0.76	260.23

Sorted with TTM EPS (High to Low)

Source – Ace Equity

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