

ASSESSMENT OF POWER SECTOR REFORMS ON THE FINANCIAL PERFORMANCE OF HIMACHAL PRADESH POWER SECTOR

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ABSTRACT:

The development of any country depends on the availability of quality power at a reliable price 24 X 7. Power is essential for every country to achieve economic growth. A drive for power sector reforms has been initiated by Governments as per the need of the hour. The Electricity Act of 2003 is the historic reform that separated the power sector into three (3) divisions, namely generation, transmission, and distribution, with a requirement that state regulators define the legal implications. The financial and operational performance of SEBs was very critical and witnessed huge financial debts. The Electricity Act of 2003 went into effect to increase the operational and financial effectiveness of the Indian Power sector. The major goals of the current study are to pinpoint the element that significantly affects HPSEB Ltd.'s financial performance. To study the effects of electricity sector reforms on financial performance, the Himachal Pradesh Distribution Utility is left unaffected.

Keywords: Power Sector Reforms, Electricity Act 2003, Financial Performance, Himachal Pradesh State Electricity Board Ltd., (HPSEB Ltd.)

INTRODUCTION:

Power is the most vital need in our life. We cannot imagine surviving without power. Also, in the present scenario, power is the most fundamental need for a human being. In the world, the economy of every country depends on the availability of power. Power is the main pillar of the social and economical growth of the country. Every nation has a great challenge to provide the power supply to its people at reasonable rates. . The availability of power 24 x 7 is the most challenging task for developing countries (**Pargal, S., & Banerjee, S. G. 2014**). As we know that India is a developing country and its economy is growing very fastest in the world power is being played a very crucial role in sustainable development. The Indian government and state governments have started several driven reforms in the power sector in response to the current situation. The Electricity (Supply) Act of 1948 authorised the establishment of State Electricity Boards (SEBs) in each Indian state following the country's independence. The SEBs were fully responsible for looking after all the power systems in the respective states. But after 1980 the financial and operational efficiency of the State Power Utilities have gone very poor continually and it was felt that power sector reforms should be initiated immediately (**Thakur, Deshmukh, Kaushik, & Kulshrestha, 2005**). The Electricity Act 2003 was a landmark milestone in the history of power sector development in India which opened all doorsteps to enter all possibilities to relate with power sector reforms in India. Additionally, it might be said that real power sector changes in India started once the Electricity Act of 2003 came into effect. In most developing nations, improving the state power utility's financial capabilities and luring private investors into the industry were the

two main goals of power sector reforms. (Jamasp, Newberry, and Pollitt, 2005). Various power sector reforms have been initiated by the Centre and State Governments in India simultaneously but still, an acute need to improve some core parameters like huge debts, lack of quality power, lack of cash flow, per capita electricity consumption, and T & D losses (Rajkumari, L., & Gayithri, K. 2018). Himachal is a hilly State with a population of around 70 lakh and an area of around 56000 sq. km. with very stringent geographic & peculiar demographic conditions. Himachal Pradesh's ability to develop its hydropower industry is crucial to the state's economic growth since it has a significant impact on the state's ability to generate power, create jobs, and improve living conditions. The HPSEB was established on September 1st, 1971, and has been in charge of the coordinated development of the state's power potential, generation, transmission, and distribution of electricity ever since. On June 14th, 2010, the HPSEB was reorganised as HPSEB Ltd., with the functions of generation, distribution, and trading of electricity with the enforcement of the Himachal Pradesh Power Sector Reforms Transfer Scheme 2010 (Department of MPP & Power, GOHP, 2010). The primary goal of the HPSEB is to deliver uninterrupted, high-quality power supplies to all consumers around the clock, 365 days a year, at a reasonable cost. In 1988, the HPSEB became the first hilly State in the nation to completely electrify all of its villages, with the greatest household coverage percentage in the nation (more than 95%). (Annual Reports, HPSEB LTD., 2011)

Why the need for Power Sector Reforms?

After the liberalization, most of the countries in the world have adopted power sector reforms to give strength to operational performance as well as financial performance and to fill the gap between demand and supply of electricity. In pursuit of India, the Government of India has already taken a serious view of the effective implementation of a model of reforms in the power sector. To address these issues and lay out a plan for achieving the desired milestone in the power sector, the government has launched several programmes, laws, and acts. In 1990, the paradigm of power sector reforms was changed to the new regime of factors impacting the underwhelming performance of the SEBs, and it differed from nation to nation according to the internal and external elements involved in affecting the performance of the power sector. In contrast to four structural reforms, independent regulators, restructuring of the traditional regime of the monopoly of the power sector, assurance of increasing private investor participation, and building up competition through wholesale power markets, the improvement of sector performance was the primary focus of the power sector reforms that were adopted in developing countries. (Foster & Rana, 2020).

Power Sector Reforms in Himachal Pradesh

According to the directive of the State Government as well as the Center Government, electricity reforms in Himachal Pradesh have intermittently been initiated. With the passing of the "Electricity Act 2003," changes in Himachal Pradesh got off to a great start. The Electricity Regulatory Commission Act of 1988, which was superseded and reenacted by the Electricity Act of 2003, established the Himachal Pradesh Electricity Commission, which is

responsible for deciding the rates for electricity generation, supply, transmission, and distribution in the state. Granting licences for the production, transmission, and transportation of electricity while guaranteeing that all state holders have access to free markets and the transparent application of laws. The H.P. Power sector has been divided into three divisions by the required clause in the Act i.e. 1. Himachal Pradesh Power Corporation Ltd. (HPPCL) 2. Himachal Pradesh Power Transmission Corporation Ltd. (HPPTCL) 3. Himachal Pradesh State Electricity Ltd. (HPSEB Ltd.) Whereas the HPPCL was started in 2006 to enhance the scope and development of power generation in H.P. The HPPTCL was established in 2008 as a result of the HPSEB's unbundling process and began operating independently in 2010 to offer and improve the state's power supply through upgraded transmission infrastructure. Before the electricity sector's unbundling, the HPSEB was solely in charge of carrying out the task of power generation, transmission, and distribution over the entire state. But after the implementation of the recommendation of the Electricity Act 2003, on 14.06.2010 HPSEB was reorganized as Himachal Pradesh State Electricity Board Ltd. As per the notification of GoHP No. MPP –A (3) 1/2001-IV dated 10.06.2010. Since that time, HPSEBL has been in charge of developing (planning, designing, building, operating, and maintaining) the power distribution system in Himachal Pradesh with built-in trading functions. Additionally, at the time of the reorganisation of the power sector in 2010, ownership and operation and maintenance (O&M) of generation stations of the former HPSEBL and a few new HEPs were under construction.

Table 1. The major policies and schemes implemented in Himachal Pradesh

S.no.	Policies	Year of Enforcement	Description
1.	Restructured Accelerated Power Development and Reforms Programme (R-APDRP)	2008	Restructured Accelerated Power Development Reform Program (R-APDRP) was launched by the Ministry of Power, Government of India, to reduce aggregate technical and commercial (AT&C) losses in state operational areas to 15%. The entire plan is broken down into two parts, Part-A and Part-B, with Part-A covering the development and adaptation of IT applications and Part-B covering the bolstering of the distribution system. The project has a total cost of Rs. 128.46 crores.
2.	Integrated Power Development Scheme (IPDS)	2014	The Integrated Power Development Scheme (IPDS) was launched by MOP (GOI) in 2014 for metropolitan communities to upgrade the sub-transmission and distribution networks there. It also replaced the electronic metres that were previously used in the distribution system.
3	DeenDayalUpa	2015	On October 11, 2017, the government of India

S.no.	Policies	Year of Enforcement	Description
	dhyaya Gram JyotiYojana (DDUGJY)		announced the commencement of the "Pradhan Mantri Sahaj Bijli Har Ghar Yojana-Saubhagya scheme." Nodal Agency is REC Ltd. The primary goal of this initiative is to link all rural homes without electricity with last-mile connectivity and electricity.
4.	Ujwal Discom Assurance Yojna (UDAY)	2015	This scheme has been launched by the Central Government in 2015 to improve the financial and operational efficiencies by Reduction in interest burden of loans, bringing out the cost of power purchase, and decrease in AT&C losses. This is the major scheme to improve the financial health of distribution companies.
5.	Power System Development Fund (PSDF)	2016	The PSDF program has been started in H.P. in 2016 with the objective to Envisages the installation of special protection schemes, pilot and demonstrative projects, and standard protection schemes based on the Protection Audit by NRPC.

Sources:- (<https://powermin.nic.in/>, www.cercind.gov.in/Act-with-amendment.pdf, <https://www.uday.gov.in/home.php> & https://himachalservices.nic.in/economics/pdf/Economic_Survey_eng2020-21.pdf)

Power sector reforms and impact on performance

The primary objective is to implement changes in the power sector that would dismantle the cartel of state-owned utilities and give private enterprises a platform to boost their competitiveness. The reform effort has destroyed the vertical monopolisation culture that was dominated by the state government's electricity sector. To increase the efficiency of the power sector in terms of financial viability, market competitiveness, cost-effective pricing, enhanced service quality, and reducing the gap between the cost of power and revenue collection, new rules and regulations must be put into place. The power sector reforms mainly focused on market-based. After examining the previous studies, it has been noticed that the effective implementation of the reform process has not been done yet. The drivers for electricity reforms are varied to developed and developing countries and wherein the external drivers are playing a master key role in framing electricity sector reforms. (**Jamasb, Nepal, &Timilsina, 2015**). When the Orissa Electricity Reform Act went into effect in 1995, the state of Orissa started the process of reforming the power sector. The major goal of this reform is to identify the root causes of the OSEB's underwhelming performance and provide solutions through reorganisation and unbundling of the OSEB. But because of the lengthy

tariff determination process and extremely high-cost prices, OERC has been unable to permit an acceptable tariff process. (Mehar and Sandhu, 2016). A study has been conducted to analyze the financial Performance of State Power Utilities in India with the specific Case Study of Punjab (Manju, 2016). The primary goal of the study is to investigate how the electricity sector changes have affected the financial performance of SEB in Punjab and to compare that performance to that of other best-performing SEB in India using some helpful ratio analysis. The Forum of Regulators has assessed the performance of distribution utilities. This project's primary goal is to analyse in-depth the financial and operational performance of the distribution utilities. The FOR conducted the study to ascertain the performance of distribution utilities and the advancement made by utilities across various states, as the health of distribution utilities is crucial for reforms in the power sector. For this study, the FOR has determined the main performance indicators using fundamental criteria often used in distribution utilities, such as the effect of different regulatory and policy decisions on performance. (Forum of Regulators, India, 2015). Keeping in view the analysis of the paper, it has come to notice that the negligence of effective implementation of rules by officers/officials, employees to reforms and poor work culture, and corruption at any stage are some of the factors that have influenced reforms. The effective implementation of institutional norms and rules is the main key to success (Mohanty & Mohanty, 2014, p. 5). The factors which are more responsible for inefficiency in the distribution sector. For significant findings, they have analyzed 8 to 10 electricity distribution Companies and given remarks, that due to high billing inefficiency in the distribution sector, the AT & C and T & D losses highly increase. To improve the efficiency in billing & collection in the distribution sector, it has been recommended to adopt the Distribution Franchisee (DF) System. The fundamental makeup of India's electricity sector has changed as a result of the reforms. A significant success of the power reforms was the unbundling of SEB. Even though regulators were established, reforms also led to the introduction of a new tariff policy. (Gadde, 2017, p. 30).

It is important to examine the main causes and issues that the power distribution utilities in India confront to understand the distribution sector's poor financial health as a major issue, it had been seen that the poor financial condition of distribution companies is a major problem for improving their performance. In the last four years, the losses of distribution companies rapidly increased, and to meet those losses the companies have to borrow loans from financial institutions and banks. The banks have allowed short-term loans to distribution companies and they are not in a position to timely repayment of loans due to their poor financial position. The study also revealed that there is a significant discrepancy between average power supply costs and average electricity revenue realisation, which is the primary factor determining the performance of power distribution companies. Additionally, a significant contributor to bad financial standing is political meddling in tariff decisions. (Azhar, 2015, p. 12). It has taken nearly three decades for power sector reforms to take effect in various nations around the world, but there is still a pressing need to strengthen the distribution sector to reduce technical losses, strengthen the distribution network, and improve the financial stability of power distribution companies and their enormous backlog of debt. (Verma, M. K., Mukherjee, V., Kumar Yadav, V., & Ghosh, S, 2020). In India,

distribution businesses' financial health is crucial. Due to lower revenue collection compared to the cost of power supply, the distribution industry has experienced significant issues. For political reasons, the government has given agricultural customers a subsidy, which could result in a reduction in tax revenue. To cover their operational costs and power purchase costs, distribution companies borrow significant amounts of money from financial institutions, and as a result, the distribution industry has become enmeshed in a net of debt with exorbitant interest rates. The poor and ineffective operational and financial performance of the distribution companies is also significantly influenced by the substantial distribution and transmission losses (T & D losses). Higher T & D losses in the distribution sectors are mostly caused by a weaker distribution network system and electricity theft. (Maurya, N. K., 2020). Rajkumari & Gayithri, (2018, p. 391) have conducted a study for assessing the performance of the power sector in Karnataka in the context of power sector reforms. They have presented all scenarios of power sector reforms in India and discussed all acts and policies which enforced strengthening the power sector in India. For assessment of the performance of the Karnataka power sector, they have selected technical and economical indicators in a specific manner. According to the researcher, the impact of reforms in the power sector in India is not up to the mark because the power sector has been hugely influenced by political interference from the start of post-independence. Due to political hurdles in the power sector, a big subsidy allowed the agricultural sector and de meter the agricultural electricity. Since its independence State Electricity Board (SEBs) has faced liquidity problems due to a lack of appropriate tariffs. Transmission and Distribution losses are also major problems in the power sector. According to the study, one of the most significant elements affecting the financial performance of the Indian power sector is the cost of power purchases. The transmission and distribution loss (T&D loss), total installed capacity, public installed capacity, total electricity generation, public electricity generation, per capita electricity consumption, and other variables/indicators have all been chosen by the researchers for an evaluation of the technical and financial performance of the Karnataka Power Sector. Additionally, they have employed trend analysis with a certain year to look for major breakdowns in various years. After reviewing the study, it was discovered that although there has been a noticeable increase in the performance of the Karnataka Power Sector, there are still some areas that need to be further improved and systematically enhanced to achieve the desired goals. Sharma, Chodankar, & Priolkar (2017b, p. 195) have given their views about India's Power Sector: Problems, Solutions, and Future Prospects. They have noted in their research that India's power sector faces significant problems and challenges due to the imbalance between supply and demand for electricity. Another important element in the Indian power market is the protracted procedure for licencing and approving new power plants. As a result of the significant loss of transmission and distribution charges, the distribution industry has also experienced very serious issues. A power distribution utility's performance is typically judged using the following variables:

Table 2. Total Installed Capacity of Himachal Pradesh

Total Installed Capacity of Himachal Pradesh	
Sector	Capacity (MW)
HPSEBL	487.55
HPPCL	165.00
CENTRAL / JOINT	7457.73
HIMURJA (STATE)	2.37
HIMURJA (PRIVATE)	291.45
Private above 5 MW	1955.90
HP Share	159.17
Total	10519.17

Source: Himachal Economic Survey 2020

The Installed capacity defines the capacity of electricity production in a particular state and its shows the ability of total availability of electricity in the particular state or country to meet the demand for the electricity. The total capacity of Himachal Pradesh is 10519.17 as of the year 2019-20.

Table 3. Electricity Demand and availability of electricity in H.P.

YEAR	ELECTRICITY DEMAND (MU)	AVAILABILITY OF ELECTRICITY	SURPLUS/ DEFICIT
2010-11	8346.20	8870.76	524.56
2011-12	8822.22	9833.21	1010.99
2012-13	8652.29	10143.95	1491.66
2013-14	9535.43	10882.45	1347.02
2014-15	10806.30	12144.78	1338.47
2015-16	11473.89	12741.69	1267.79
2016-17	11537.70	12974.91	1437.20
2017-18	11888.13	13287.14	1399.01
2018-19	12727.68	13916.73	1189.05
2019-20	12669.55	13929.67	1260.12

Sources:- www.hpseb.com

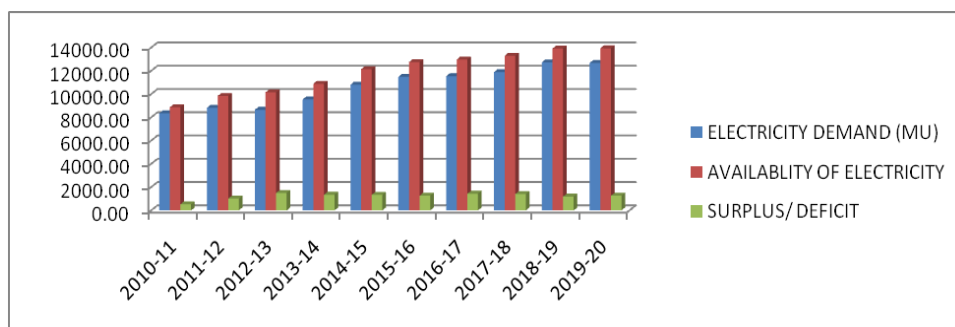


Fig. 1. Graphical Representation of Electricity Demand and availability of electricity in H.P.

Given the above, it is submitted that the availability of electricity in Himachal Pradesh has been surplus in comparison to the demand for electricity. During the F.Y. 2010-11 to 2019-20, the availability of electricity was very high from the electricity demand. This is a sign of good operational performance of the H.P. power sector.

Table:4. Per Capita Consumption of Electricity in Himachal Pradesh

S.NO.	YEAR	PER CAPITA CONSUMPTION (kWH)
1	2010-11	969
2	2011-12	978
3	2012-13	1052
4	2013-14	1099
5	2014-15	1147
6	2015-16	1160
7	2016-17	1161
8	2017-18	1226
9	2018-19	1317
10	2019-20	1329

Sources:- www.hpseb.com

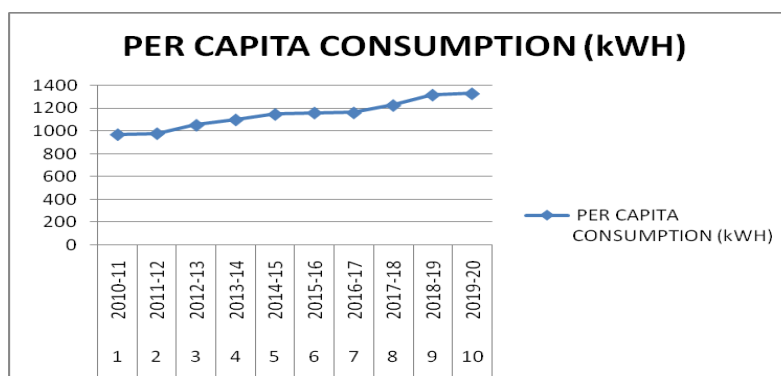


Fig. 2. Graphical Representation of Per Capita Consumption of Electricity in H.P.

The above trend has shown that the per capita consumption of electricity in H.P is repeatedly increasing year to year. This is a good sign for the operation efficiency of the company.

Table: 5. Transmission & Distribution losses in Himachal Pradesh

S.NO.	YEAR	T & D LOSSES (%)
1	2010-11	12.73
2	2011-12	12.16
3	2012-13	13.62
4	2013-14	11.54
5	2014-15	10.17
6	2015-16	9.11
7	2016-17	10.35
8	2017-18	9.82
9	2018-19	8.54
10	2019-20	9.05

Sources:- www.hpseb.com

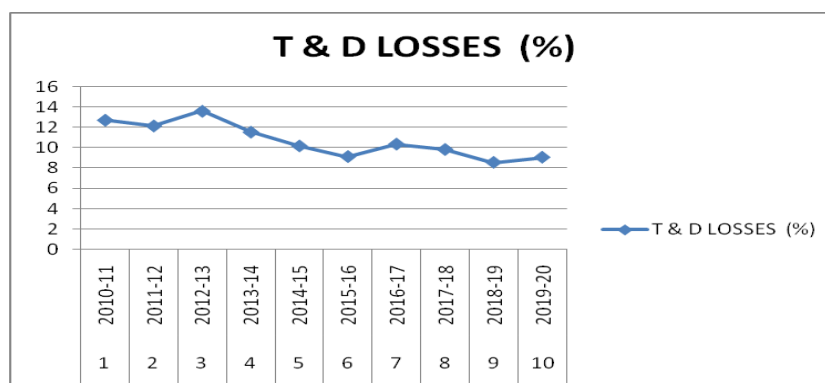


Fig. 3. Graphical Representation of T & D losses in H.P.

Many studies have proved that the main reason for the poor operational and financial performance of the Power Distribution company is a very high rate of Transmission and Distribution losses (T & D losses). The high percentage of the T & D loss in any Distribution Company is not good for the company's overall performance. The main objective of every power distribution company is to reduce the maximum percentage of T & D losses to improve their performance. The above data has shown that the percentage of the T & D losses in the HPSEBL is very low and simultaneously the T & D losses are reducing every year which shows the very good operational performance of the company.

Table: 6. Tariff Rate per unit in H.P.

S.NO.	YEAR	Tariff (per unit in rs)
1	2010-11	1.00
2	2011-12	2.20
3	2012-13	3.25
4	2013-14	2.70
5	2014-15	2.70
6	2015-16	2.70
7	2016-17	2.90
8	2017-18	4.60
9	2018-19	4.80
10	2019-20	4.85

Sources:- www.hpseb.com

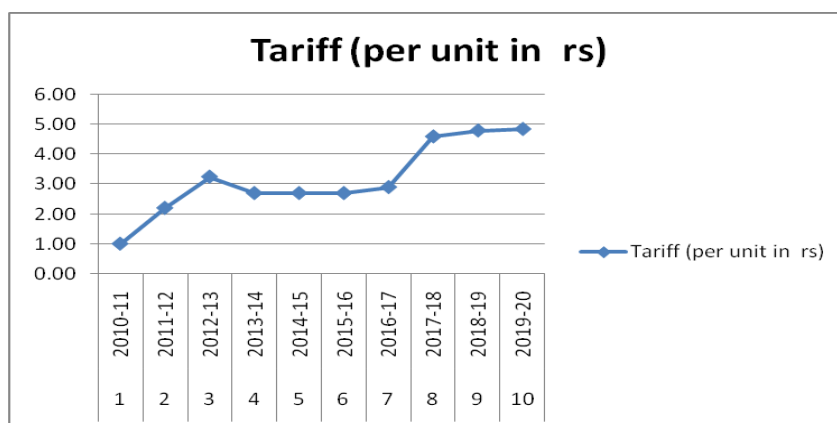


Fig. 4. Graphical Representation of Tariff rate per unit in H.P.

Himachal Pradesh has the greatest household coverage ratio in the nation (more than 95%) and was the first state with a lot of hills to electrify every single hamlet in 1988. electrification, 100% metering, billing, and collection for Comic, the world's highest inhabited hamlet at 15124 feet. With the lowest tariff rate per unit, Himachal Pradesh is the top-ranking state in India. The average tariff rate in HP is represented by the figures above.

SIGNIFICANCE OF THE STUDY

The various factors are affected the financial performance of the company directly. The main aims of the research are to identify those factors that have the greatest influences on the financial performance of the HPSEBL after the implantation of various power sector reforms in H.P. The extent of the financial analysis and Annual Report of the power Company incorporate Profit & Loss Account, Balance sheet and Cash flow of the Company. Based on this analysis, factors, findings, and conclusions to be workout concerning the various laws & Acts related to Electricity and various provisions of tariff order determined by Hon'ble

HPERC and CERC, and what is the future scope of further improvement of financial performance of H.P. Power Distribution Company. The present study preferred to assess the financial statements of particular reforms period in an examination of the financial performance of HPSEBL. The specific objectives of the study are as follows:

- To study the power sector reforms in the Himachal Pradesh power sector.
- To examine the financial performance of the H.P. power distribution utility.
- To present suitable suggestions/measures for improving the financial performance of H.P. Power Utility.

RESEARCH METHODOLOGY

This study is an analytical manner in nature. The databases of secondary sources are used for this study. The secondary data is depicted from various sources such as state-level, centre-level, and international agencies/institutions. For this study, The Annual Reports, Administrative reports, and MYT Report of Government are also major sources of data which are depicted (monthly, quarterly, and annual) by different agencies, State Electricity Boards/Utilities in India, like Power Finance Corporation, Ministry of Power, Govt. of India, Rural Electrification Corporation, Central Electricity Authority, World Bank's reports, and Planning Commission (NitiAyog), TERI, etc were be freely used. In addition to these, the following sources were also tapped:

- Existing Acts and Legislations
- Annual financial Reports of HPSEB / HPSEBL
- Administrative Reports of HPSEB / HPSEBL
- H.P. Economic Survey Reports

The data collected through various secondary sources shall be classified and tabulated for analysis and interpretation such will be done with the help of different accounts and statistical tools. The balance sheet of the company is a ready ranker of a company's liabilities and Assets at a particular period. The financial analysis is used to evaluate managerial effectiveness, short- and long-term solvency of the business, and the earning capability of the corporation based on profitability. The financial analysis also helps to compare the inter-firm comparison to know the actual positions of the company in the different aspects. But there are some limitations of financial statement analysis; the financial statement analysis covers only historical analysis, not future analysis. But there are some limitations in financial statement analyses that the price level changes and qualitative aspects in this analysis are ignored. Various financial ratios can be used to analyse the company's profitability, liquidity, and financial capacity. In the current study, it is more important to evaluate the H.P. State Power Distribution Utility's financial performance using a variety of financial analytic tools and approaches. Additionally, some practical and appropriate statistical approaches are discussed for evaluating the performance growth rates of various variables related to the financial

performance of the electricity company in Himachal Pradesh. The following methods have been discussed for assessing the utility's overall performance.

A. Ratio Analyses

B. Standards of Comparison

C. Horizontal Analysis

D. Time Series Analysis or Trend Analysis

PERIOD OF THE STUDY

The current study has as its main objective the analysis of the HPSEBL's financial results following the adoption of the 2003 Electricity Act. According to the notification issued by the Himachal Pradesh government by the Electricity Act of 2003, the power sector of the state was turned into a company in December 2009 from the SEB and began performing independent tasks with effect from June 14, 2010. The researcher has taken the data for the period range 2010-11 to 2019-20 for analysis of the impact of power sector reforms on the Financial Performance of the state power utility. Besides this, the UDAY scheme has been launched in HPSEB Ltd. in 2016 and this scheme was specially introduced to reduce the stress of heavy debt, improve the financial health of the power distribution company and reduce AT&C losses to improve operational efficiency. This study will examine the pre and post-impact of the Ujwal Discom Assurance Yojna (UDAY) scheme on the financial performance of HPSEB Ltd.

Ratio Analysis

One of the most effective and widely used techniques for examining financial statements is ratio analysis. It is a method of analysing financial statements. It is a commonly used method to interpret the quantitative relationship between two financial statement variables. It is an arithmetical statement of the relationship between two interdependent things or components. When compared to other financial analysis methods, ratio analysis offers very helpful insights into a variety of operational elements, such as a company's financial condition, solvency, stability, liquidity, and profitability. The accounting data can be streamlined during the ratio analysis of the financial statement to evaluate operating effectiveness, identify the company's weak spots, and compare similar companies between themselves for intra- and inter-firm analysis.

Profitability Ratio

Making a profit through economic activity is the company's primary goal. Every firm's top management is interested in learning how much profit the company makes over a fiscal year. Every stakeholder wants to know the company's profitability about its priorities. The company's ability to cover its operational costs is demonstrated by its profitability. An essential ratio that gauges the company's profitability is shown below.

Gross Profit Ratio = Gross Profit / Sales X 100

[1]

The ability to successfully use financial resources is demonstrated by the gross profit ratio, which is a useful indicator of the organisation. The high gross profit percentage demonstrates the management's effective performance. A profitability ratio called the gross margin ratio compares a company's gross margin to its net sales. This ratio calculates the revenue generated by the sale of a company's inventory or goods. In other terms, the gross profit margin is effectively the markup on goods over their cost. The sole profit from the sale of inventory is what can be used to cover operational costs.

Table: 7. Gross Profit Ratio of the HPSEBL

S.no.	Year	Gross Profit	Sales	Gross Profit Ratio
1	2010-11	71982.45	299115.49	24.07
2	2011-12	136492.96	402255.17	33.93
3	2012-13	196468.88	459407.18	42.77
4	2013-14	223110.16	522382.89	42.71
5	2014-15	225976.75	596675.88	37.87
6	2015-16	245602.22	618971.05	39.68
7	2016-17	273815.71	662192.49	41.35
8	2017-18	292342.63	671369.38	43.54
9	2018-19	270129.88	734199.54	36.79
10	2019-20	296377.73	715468.98	41.42

Sources:- Author's presentation

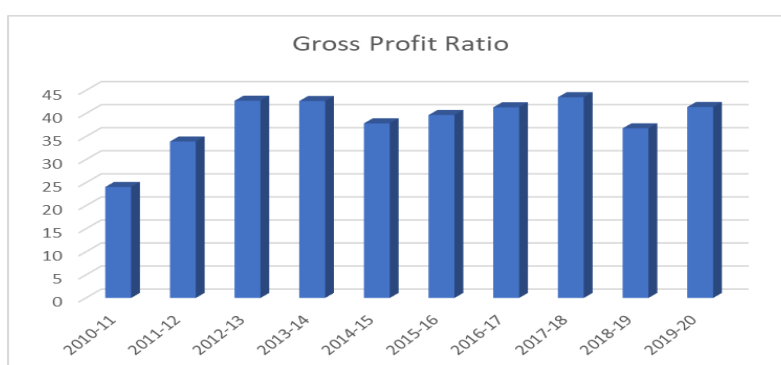


Fig. 5. Graphical Representation of Gross Profit Ratio of the HPSEBL.

A Higher Gross profit ratio is more favourable. HPSEBL introduce UDAY Scheme in the financial year 2016-17 because this company was able to improve the gross profit ratio by 4.21% as compared to the previous financial year 2015-16. In the next financial year i.e., 2017-18 company was able to improve by 5.29% as compared to the previous financial year 2016-17.

An organisation with a high gross margin ratio will have more cash available to cover operating costs like salaries, utilities, and rent. Since this ratio calculates inventory sales earnings, it also calculates the proportion of sales that can be utilised to finance other areas of the company. Here is a more excellent justification.

Net Profit Ratio

The performance of a corporation in making a profit on each dollar of sales is gauged by its net margin. It is one of the most important financial ratios. All elements that affect profitability, whether or not they are managed by management, are included in the net margin. The net profit ratio measures the proportion of net profit to operating revenue. calculates the company's overall profit after all costs have been covered. The larger proportion demonstrates the high profitability of a firm.

Net Profit Ratio:- $\text{Net Profit} \times 100 / \text{Sales}$

[2]

Table: 8. Net Profit Ratio of HPSEBL

Sr. No.	Fin. Year	NET PROFIT (In lakh)	Sales	Net Profit Ratio
1	2010-11	-33756.49	299,115.49	-11.29
2	2011-12	-51591.95	402,255.17	-12.83
3	2012-13	-33906.51	459,407.18	-7.38
4	2013-14	-15178.34	522,382.89	-2.91
5	2014-15	-10754.05	596,675.88	-1.80
6	2015-16	-1781.03	618,971.05	-0.29
7	2016-17	-5508.14	662,192.49	-0.83
8	2017-18	365.96	671,369.38	0.05
9	2018-19	355.97	734,199.54	0.05
10	2019-20	1090.88	715,468.98	0.15

Sources:- Author's presentation

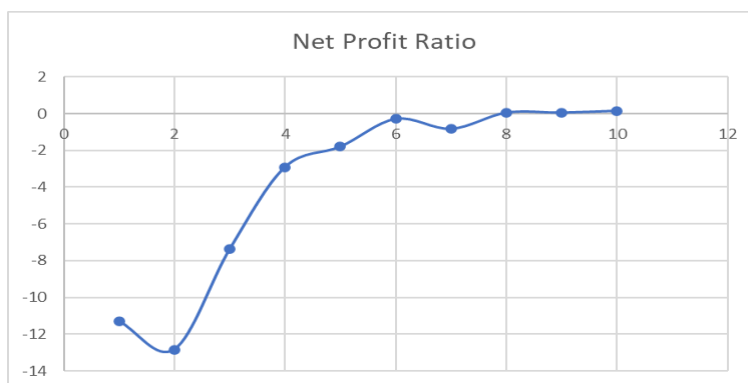


Fig. 6. Graphical Representation of Net Profit Ratio of the HPSEBL.

The ratio indicates how well a corporation controls costs; the higher the ratio, the better. The corporation can increase its net profit margin thanks to HPSEBL's introduction of the UDAY Scheme. The company's net profit ratio was negative before the implementation of this plan, but it turned positive in the financial year 2017–18 and thereafter.

A larger margin is usually preferable to a lower margin since it allows the business to convert more of its sales into profits at the end of the period. In light of the comparison study, we can therefore say that UDAY Scheme is advantageous for the HPSEBL.

Operating Ratio

By comparing the overall operating expense (OPEX) of a firm to net revenues, the operational ratio illustrates the effectiveness of a company's management. The operating ratio reveals how successfully a management team manages to control expenditures while generating income or sales. The operating ratio is calculated to determine how operating expenses and net revenues are related. This is directly correlated with the operating profit to net sales ratio. The evaluation of a company's operational effectiveness is based on the cost of goods sold and other operating costs that have a relationship to the sales operating ratio that is similar. The percentages of sales that are eaten up by the cost of sales and operational expenses are displayed. An operational ratio that is lower indicates a higher operating profit.

Operating Ratio:- Operating Expenses X 100/ Sales [3]

Table:9. Operating Ratio of the HPSEBL

S.no.	Year	Operating Expenses	Sales	Operating Ratio
1	2010-11	105486.85	299115.49	35.27
2	2011-12	188084.91	402255.17	46.76
3	2012-13	230375.39	459407.18	50.15
4	2013-14	238288.5	522382.89	45.62
5	2014-15	236730.8	596675.88	39.67
6	2015-16	247383.25	618971.05	39.97
7	2016-17	279323.85	662192.49	42.18
8	2017-18	291976.67	671369.38	43.49
9	2018-19	269773.91	734199.54	36.74
10	2019-20	295286.85	715468.98	41.27

Sources:- Author's presentation

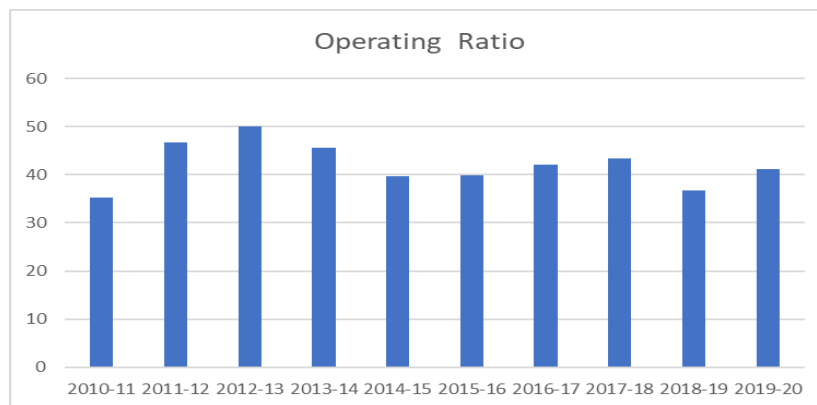


Fig. 7. Graphical Representation of Operating Ratio of the HPSEBL.

The company is more effective at producing revenue if the ratio is lower. According to the comparisons above, we can cut 13.84% from the financial year 2016–17 to the financial year 2018–19 (after one year after the UDAY Scheme was introduced). The 2018–19 ratio is falling during the fiscal year, indicating that the business is successfully reducing its costs while increasing sales.

Net Operating Profit Ratio

The operating profit margin ratio shows how much money a business makes after covering variable production costs like labour, raw materials, etc. It also indicates how effectively a business manages the costs and expenses related to running its operations when represented as a percentage of sales. The ratio of net operating profit to net income from operational operations is known as the net operating profit ratio. After paying for operating expenses, the management is interested in learning how much a company produces in net profit. It aids in determining how effectively the organisation operates.

Net Operating Profit Ratio:- $\text{Net Operating Profit} \times 100 / \text{Sales}$ [4]

Table: 10. Net Operating Profit Ratio of the HPSEBL

S.no.	Year	Net Operating Profit	Sales	Net Operating Profit Ratio
1	2010-11	-33504.41	299115.49	-11.20
2	2011-12	-51591.95	402255.17	-12.83
3	2012-13	-33906.51	459407.18	-7.38
4	2013-14	-15178.34	522382.89	-2.91
5	2014-15	-10754.05	596675.88	-1.80
6	2015-16	-1781.03	618971.05	-0.29
7	2016-17	-5508.14	662192.49	-0.83
8	2017-18	365.96	671369.38	0.05

9	2018-19	355.97	734199.54	0.05
10	2019-20	1090.88	715468.98	0.15

Sources:- Author's presentation

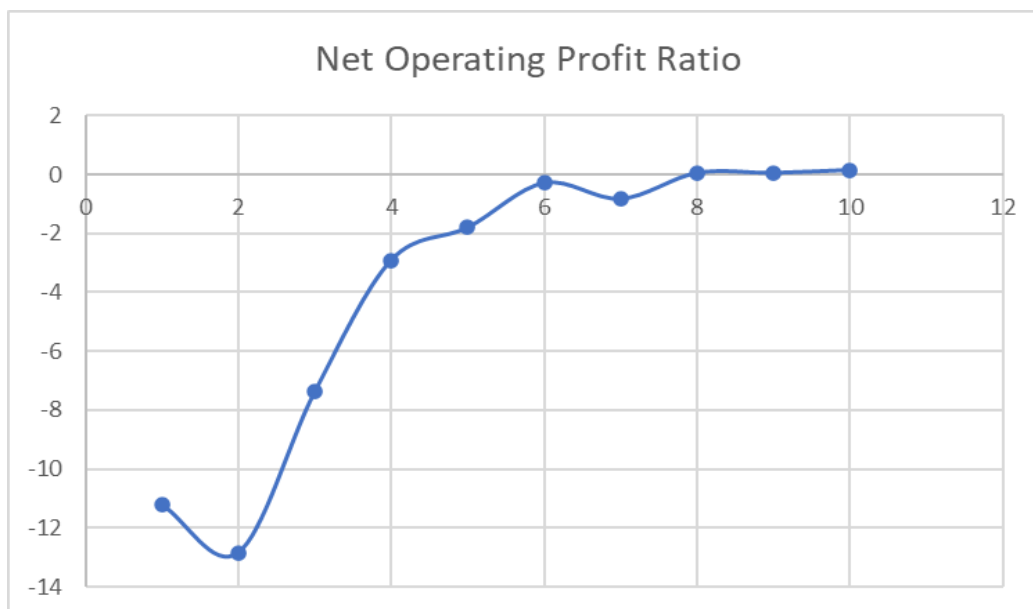


Fig. 8. Graphical Representation of Net Operating Profit Ratio of the HPSEBL.

The higher the ratio, the better a corporation is at controlling costs. The corporation can increase the net operating profit ratio as a result of HPSEBL's introduction of the UDAY Scheme. The company's net profit ratio was negative before the implementation of this plan, but it became positive in the financial year 2017–18 and remained positive after that. An organisation can convert more of its sales into profits at the end of the period if its operational margin is larger than its margin. In light of the comparison analysis, we can therefore say that UDAY Scheme is advantageous to HPSEBL.

Return on Investment (ROI)

A performance metric called return on investment (ROI) is used to assess an investment's effectiveness or profitability or to compare the effectiveness of multiple distinct investments. ROI is to quantitatively assess how much money is earned about the cost of an investment.

$$\text{Return on Investment (ROI)} = \text{EBIT} / \text{Capital Employed} \times 100 \quad [5]$$

Table: 11. Return on Investment (ROI) ratio of the HPSEBL

S.NO.	YEAR	Net profit	Capital Employed	Capital Employed Ratio
1	2010-11	-33504.41	632964.63	-5.29
2	2011-12	-51591.95	335892.82	-15.36
3	2012-13	-33906.51	283777.90	-11.95
4	2013-14	-15178.34	352282.47	-4.31

S.NO.	YEAR	Net profit	Capital Employed	Capital Employed Ratio
5	2014-15	-10754.05	398019.24	-2.70
6	2015-16	-1781.03	422063.84	-0.42
7	2016-17	-5508.14	540913.54	-1.02
8	2017-18	365.96	622395.12	0.06
9	2018-19	355.97	652822.49	0.05
10	2019-20	1090.88	738865.19	0.15

Sources:- Author's presentation

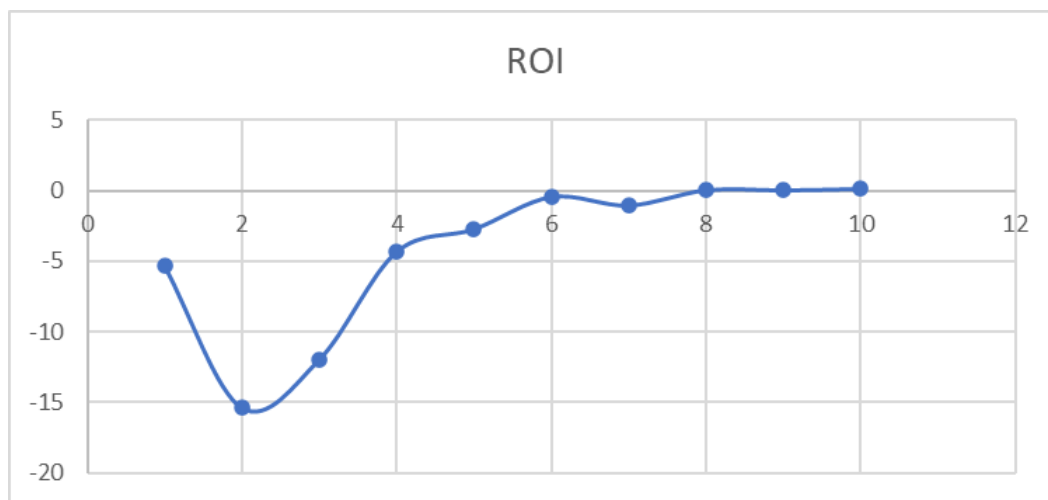


Fig. 9. Graphical Representation of Return on Investment (ROI) Ratio of the HPSEBL.

It is better for the company if the ratio is higher. As far as we are aware, the UDAY Scheme was established during the 2016–17 fiscal year and starting with the 2017–18 fiscal year, the company's return on investment improved from a challenging situation. A company's best return on investment is to make sure that it is profitable.

LIQUIDITY RATIOS

Liquidity ratios are a crucial class of financial measures used to assess a debtor's capacity to settle current debt commitments without the need for outside funding. The current ratio, quick ratio, and operating cash flow ratio are only a few examples of the indicators used to calculate liquidity ratios, which gauge a company's capacity to pay debts and its margin of safety.

Current Ratio

A company's capacity to cover its entire current assets, such as cash, accounts receivable, and inventories, with its current liabilities (due within a year), is gauged by its current ratio. The company's liquidity position is improved when the ratio is higher:

Current Ratio:- Current Assets / Current Liability

[6]

Table:12. Current Ratio of the HPSEBL

S.NO.	YEAR	current Asset	Current Liability	Current Ratio
1	2010-11	135001.59	224528.72	0.60
2	2011-12	174872.03	513141.72	0.34
3	2012-13	221943.57	541166.16	0.41
4	2013-14	221943.57	540125.75	0.41
5	2014-15	266547.09	555125.90	0.48
6	2015-16	249221.53	543134.82	0.46
7	2016-17	200574.51	365262.31	0.55
8	2017-18	159126.42	298486.68	0.53
9	2018-19	149084.10	288801.61	0.52
10	2019-20	194407.87	283865.41	0.68

Sources:- Author's presentation

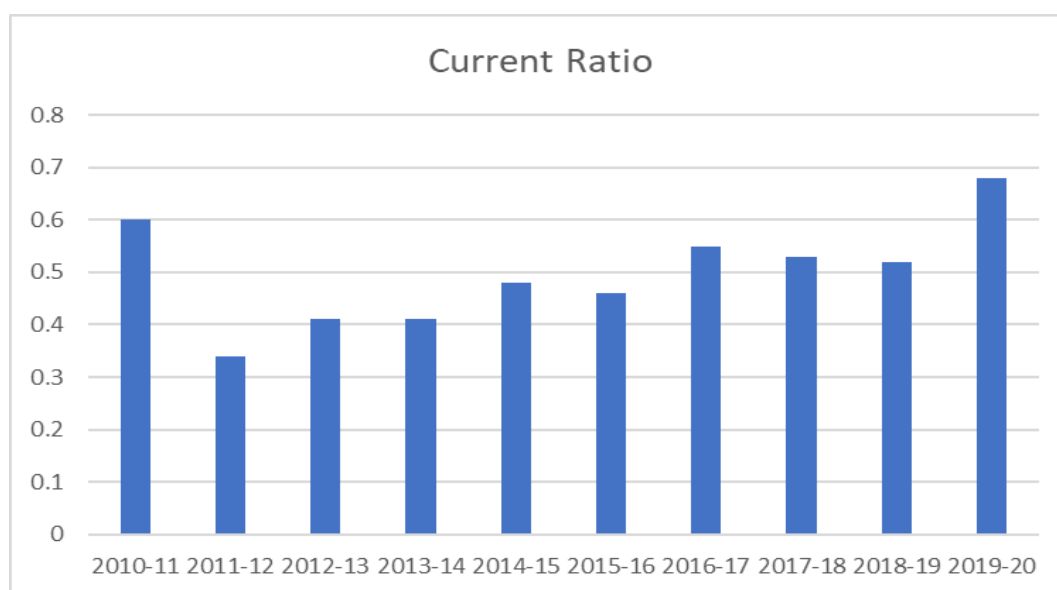


Fig. 10. Graphical Representation of Current Ratio of the HPSEBL.

Because it demonstrates the corporation can more readily make current debt payments, a higher current ratio is always preferable to a lower one. According to the comparisons above, HPSEBL can cut its current ratio by 3.64% in 2017–18 (1 year after the UDAY programme was introduced) and by 1.89% in 2018–19. The current ratio enables creditors and investors to comprehend a company's liquidity and the ease with which it will be able to settle its current liabilities. This ratio describes a company's current debt in terms of current assets. Therefore, a current ratio of 0.55 would indicate that the corporation has 0.55 times more current assets than current liabilities.

Quick Ratio

Since inventories are not included in current assets, the quick ratio evaluates a company's capacity to pay short-term obligations with its most liquid assets. The acid-test ratio is an alternative name for it.

Quick Ratio:- Quick Assets / Current Liability

[7]

Table: 13. The quick ratio of the HPSEBL

S.NO.	YEAR	Quick Assets	Current Liability	Quick Ratio
1	2010-11	126293.59	224528.72	0.56
2	2011-12	164460.79	513141.72	0.32
3	2012-13	159594.83	541166.16	0.29
4	2013-14	214247.04	540125.75	0.40
5	2014-15	259424.39	555125.90	0.47
6	2015-16	239837.39	543134.82	0.44
7	2016-17	194732.33	365262.31	0.53
8	2017-18	152087.02	298486.68	0.51
9	2018-19	133574.56	288801.61	0.46
10	2019-20	177950.73	283865.41	0.63

Sources:- Author's presentation

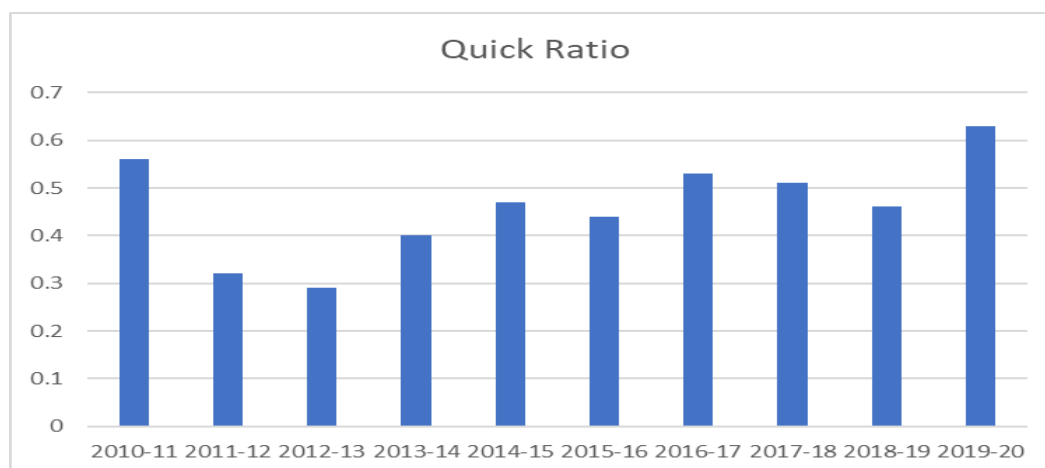


Fig. 11. Graphical Representation of Quick Ratio of the HPSEBL.

Leverage Ratio

Leverage ratios are just one of many financial metrics used to evaluate a company's capacity to pay its debts. A company's mix of operating expenses can be measured using a leverage ratio to gain a sense of how changes in output would impact operating profits. Leverage ratios that are frequently used are the equity multiplier, debt-to-equity ratio, level of financial leverage, and consumer leverage ratio. The ability to settle current liabilities with rapid assets

is how the acid test ratio determines a company's liquidity. Without having to liquidate any long-term or capital assets, a company can pay its debts if it has enough liquid assets to meet all of its current liabilities.

Debt Ratio

The debt ratio is a measure of a company's solvency that expresses its total obligations as a proportion of its total assets. In a way, the debt ratio demonstrates a business's capacity to cover its liabilities with its assets. In other words, this illustrates how many assets must be sold by the business to cover all of its debts.

Debt Ratio:- Total Debts / Total Assets

[8]

Table: 13. Debt Ratio of the HPSEBL

S.NO.	YEAR	TOTAL DEBTS	TOTAL ASSETS	DEBT RATIO
1	2010-11	615392.95	644822.82	0.95
2	2011-12	717578.51	849034.54	0.85
3	2012-13	756376.41	824944.06	0.92
4	2013-14	833815.29	892408.22	0.93
5	2014-15	913616.82	953145.14	0.96
6	2015-16	916433.15	965198.66	0.95
7	2016-17	885366.40	906175.85	0.98
8	2017-18	920935.80	920881.80	1.00
9	2018-19	941624.09	941624.10	1.00
10	2019-20	1022730.60	1022730.60	1.00

Sources:- Author's presentation

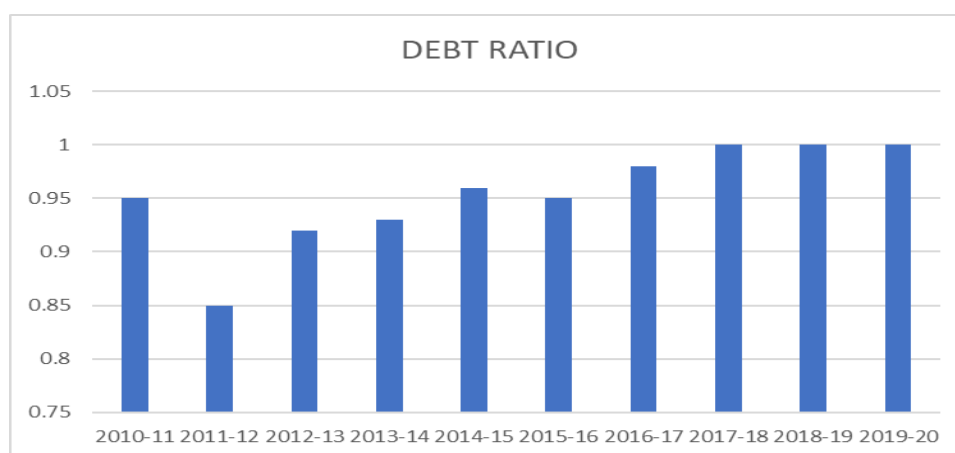


Fig. 12. Graphical Representation of Debt Ratio of the HPSEBL.

A corporation with a lower debt ratio also typically has less overall debt, which suggests a more stable operation with longer-term viability. There are benchmarks for debt in each industry, but a ratio of .5 is reasonable. Since total liabilities are calculated as a percentage of total assets, the debt ratio is displayed in decimal notation. As is the case with many solvency ratios, a lower ratio is preferable to a greater ratio. We can see that the company's total debt decreased by 3.39% in 2016–17 (in line with the UDAY Scheme's goal of reducing debt), but the company was unable to develop assets at the same time, which led to a higher debt ratio.

Fixed Assets Ratio

A company's total fixed assets (net) divided by its long-term funds yields the fixed Assets ratio, a form of solvency ratio (long-term solvency), which is used to measure financial health. The amount of fixed assets that each unit of long-term funding is financing is displayed. It contributes to the assessment of a company's ability to meet its debt obligations to long-term lenders, demonstrating its financial stability and assuring its long-term existence.

Fixed Assets Ratio: Fixed Assets / Long Term Fund (Capital Employed) [9]

Table: 14. Fixed Assets Ratio of the HPSEBL

S.NO.	YEAR	FIXED ASSETS	Capital Employed	FIXED ASSETS RATIO
1	2010-11	383143.71	632964.63	0.61
2	2011-12	442608.16	335892.82	1.32
3	2012-13	599754.38	283777.90	2.11
4	2013-14	603510.60	352282.47	1.71
5	2014-15	608172.21	398019.24	1.53
6	2015-16	628623.34	422063.84	1.49
7	2016-17	638196.04	540913.54	1.18
8	2017-18	683859.64	622395.12	1.10
9	2018-19	701643.17	652822.49	1.07
10	2019-20	724095.12	738865.19	0.98

Sources:- Author's presentation

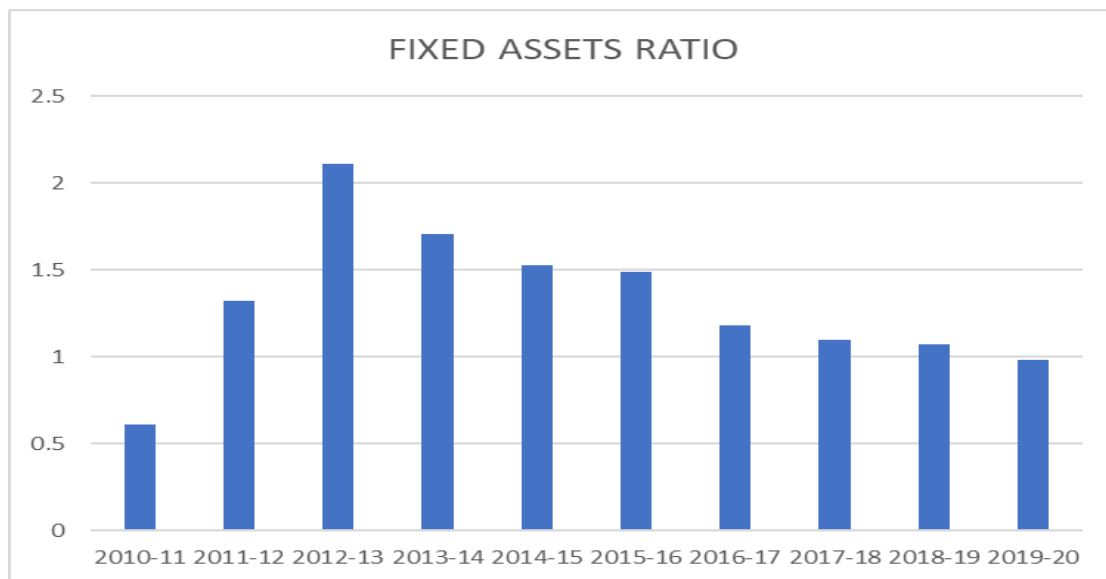


Fig. 12. Graphical Representation of Fixed Assets Ratio of the HPSEBL.

A ratio greater than one shows that the company's net fixed assets exceed its long-term funds, proving that some of its fixed assets were acquired using short-term money. This shows a lack of operational efficiency. When this ratio is below 1, it means that the company's long-term funds exceed its net fixed assets. It is beneficial to some extent since it shows that a business has enough long-term capital to pay for its fixed assets. As we all know, the primary goal of the UDAY programme is to lower debt, which frees up more money for the corporation to invest in an asset. Following the aforementioned comparisons, HPSEBL was able to expand fixed assets by 7.16% in the financial year 2017–18, by 2.60% in the financial year 2018–19, and by 3.20% in the financial year 2019–20.

Capital Employed Turnover Ratio

The capital employed turnover ratio demonstrates how effectively sales are produced using the firm's capital. This ratio serves as a critical deciding factor for whether to lend more money to the asking company by assisting investors or creditors in assessing a company's capacity to create revenues from the capital invested.

Capital Employed Turnover Ratio:- $\text{Net Sales} / \text{Average Capital Employed}$ [10]

Table: 15. Capital Employed Turnover Ratio of the HPSEBL

Sr. No.	Fin. Year	Sales	FIXED ASSETS	FIXED ASSETS TURNOVER RATIO
1	2010-11	299115.49	383143.71	0.78
2	2011-12	402255.17	442608.16	0.91
3	2012-13	459407.18	599754.38	0.77
4	2013-14	522382.89	603510.60	0.87
5	2014-15	596675.88	608172.21	0.98

Sr. No.	Fin. Year	Sales	FIXED ASSETS	FIXED ASSETS TURNOVER RATIO
6	2015-16	618971.05	628623.34	0.98
7	2016-17	662192.49	638196.04	1.04
8	2017-18	671369.38	683859.64	0.98
9	2018-19	734199.54	701643.17	1.05
10	2019-20	715468.98	724095.12	0.99

Sources:- Author's presentation

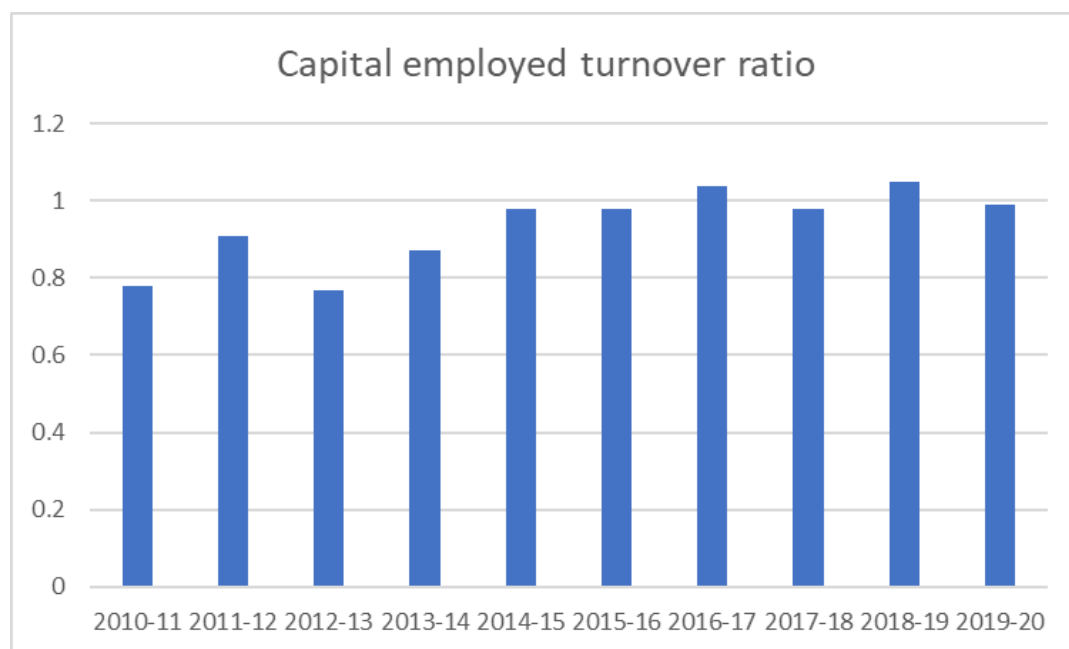


Fig. 13. Graphical Representation of Capital Employed Turnover Ratio of the HPSEBL.

The ratio that is greater demonstrates the firm's ability to maximise earnings while utilising the least amount of capital possible. We are aware that the UDAY Scheme was launched in the 2016–17 fiscal year, and that same year, the company was able to increase the ratio by 6.12%, demonstrating that the capital employed by the company in 2016–17 was well utilised.

Fixed Assets Turnover Ratio

An efficiency ratio called the fixed asset turnover ratio compares net sales to fixed assets to determine how well a company is performing on its investment in property, plant, and equipment. It determines, in other words, how well a business produces sales using its machinery and equipment.

Fixed Assets Turnover Ratio:- $\text{Turnover (Sales) / Total Assets}$

[11]

Table: 16. Fixed Assets Turnover Ratio of the HPSEBL

Sr. No.	Fin. Year	Sales	FIXED ASSETS	FIXED ASSETS TURNOVER RATIO
1	2010-11	653196.22	383143.71	1.70
2	2011-12	382845.73	442608.16	0.86
3	2012-13	422166.66	599754.38	0.70
4	2013-14	505090.4	603510.60	0.84
5	2014-15	558434.2	608172.21	0.92
6	2015-16	598001.62	628623.34	0.95
7	2016-17	629153.79	638196.04	0.99
8	2017-18	652076.13	683859.64	0.95
9	2018-19	704035.6	701643.17	1.00
10	2019-20	687302.09	724095.12	0.95

Sources:- Author's presentation

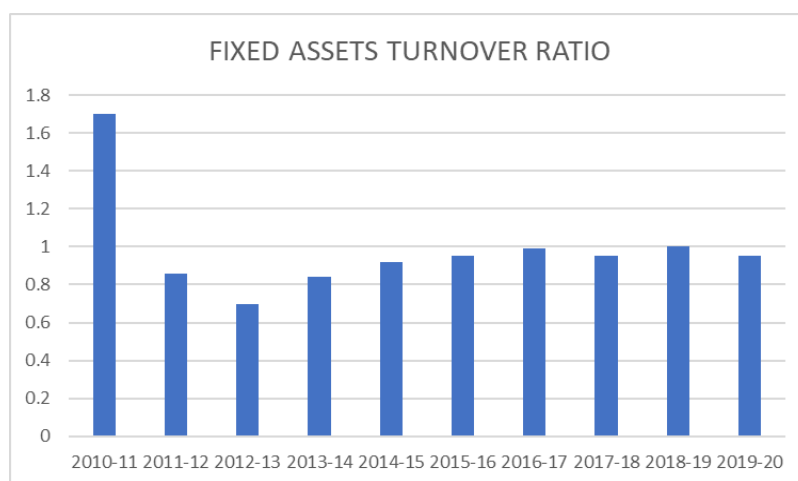


Fig. 14. Graphical Representation of Fixed Assets Turnover Ratio of the HPSEBL.

A high turnover rate suggests that resources are being used effectively and that many sales are being produced with a small number of resources. The company was able to raise its fixed asset turnover ratio by 4.21% in the year after launching the UDAY Scheme, demonstrating effective asset usage and the ability to produce significant sales from very few assets.

Interest Coverage Ratio

The ability of a business to promptly pay the interest on its loan is gauged by the interest coverage ratio, which is a financial ratio. This liquidity ratio, unlike the debt service coverage ratio, has nothing to do with the ability to make principal payments on the debt itself. Instead, it determines the firm's capacity to pay the debt's interest.

Interest Coverage Ratio:- EBIT/ Interest / Finance Cost

[12]

Table: 17. Interest Coverage Ratio of the HPSEBL

S.NO.	YEAR	Net profit	Interest	Interest Coverage Ratio
1	2010-11	-33504.41	14158.75	-2.37
2	2011-12	-51591.95	26110.72	-1.98
3	2012-13	-33906.51	42946.27	-0.79
4	2013-14	-15178.34	54617.27	-0.28
5	2014-15	-10754.05	53552.13	-0.20
6	2015-16	-1781.03	51855.33	-0.03
7	2016-17	-5508.14	50334.65	-0.11
8	2017-18	365.96	45705.82	0.01
9	2018-19	355.97	40862.83	0.01
10	2019-20	1090.88	45038.34	0.02

Sources:- Author's presentation

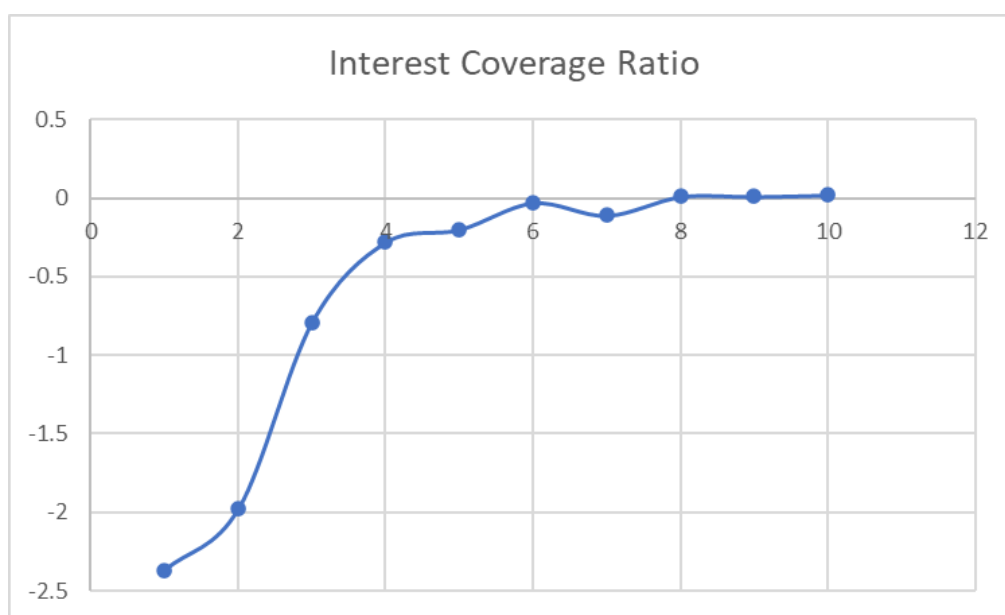


Fig. 15. Graphical Representation of Interest Coverage Ratio of the HPSEBL.

The corporation isn't producing enough money to cover its interest payments if the calculation results in a result smaller than 1. The corporation produces just enough money to cover its interest if the coverage equation is equal to 1, which is 1. If the coverage ratio is more than 1, the business is producing enough money to meet its interest commitments plus some extra cash for principal payments. It is better for the company if the ratio is higher. As far as we are aware, the UDAY Scheme was launched in the 2016–17 fiscal year, and starting in the 2017–18 fiscal year, the company's return on investment (ROI) turned positive after a period of negative growth.

CONCLUSION

Because of the aforementioned, it is said that after the UDAY Scheme was modified, the HPSEBL's financial performance improved. The study has demonstrated that although there is a pressing need to enhance HPSEBL's financial performance, the UDAY programme has a major negative influence on the company's profitability, liquidity, and efficiency. To strengthen HPSEBL's financial position and better serve its customers, it is also recommended that the UDAY loan be converted into grant and equity as specified in the UDAY scheme according to the analogy of the Punjab government. If not, the company won't be able to pay off the loan's principal and interest. The government's extensive efforts succeeded in passing a new law and policy to boost the power sector. Additionally, if the UDAY loan is not converted into equity and grant in the upcoming years, the company's liquidity and profitability will be impacted. Additionally, if the regulator does not permit the UDAY loan's interest rate to be charged, it will affect how the additional Rs 4370 Cr in cash outflow will be financed because it cannot be covered by the company's operational revenue. For India's electricity sector, the future years will be of utmost importance. The authors have therefore advised setting realistic goals to meet future electricity demands. India's future energy needs can best be met by renewable energy, and it is necessary to develop this resource to satisfy those needs.

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