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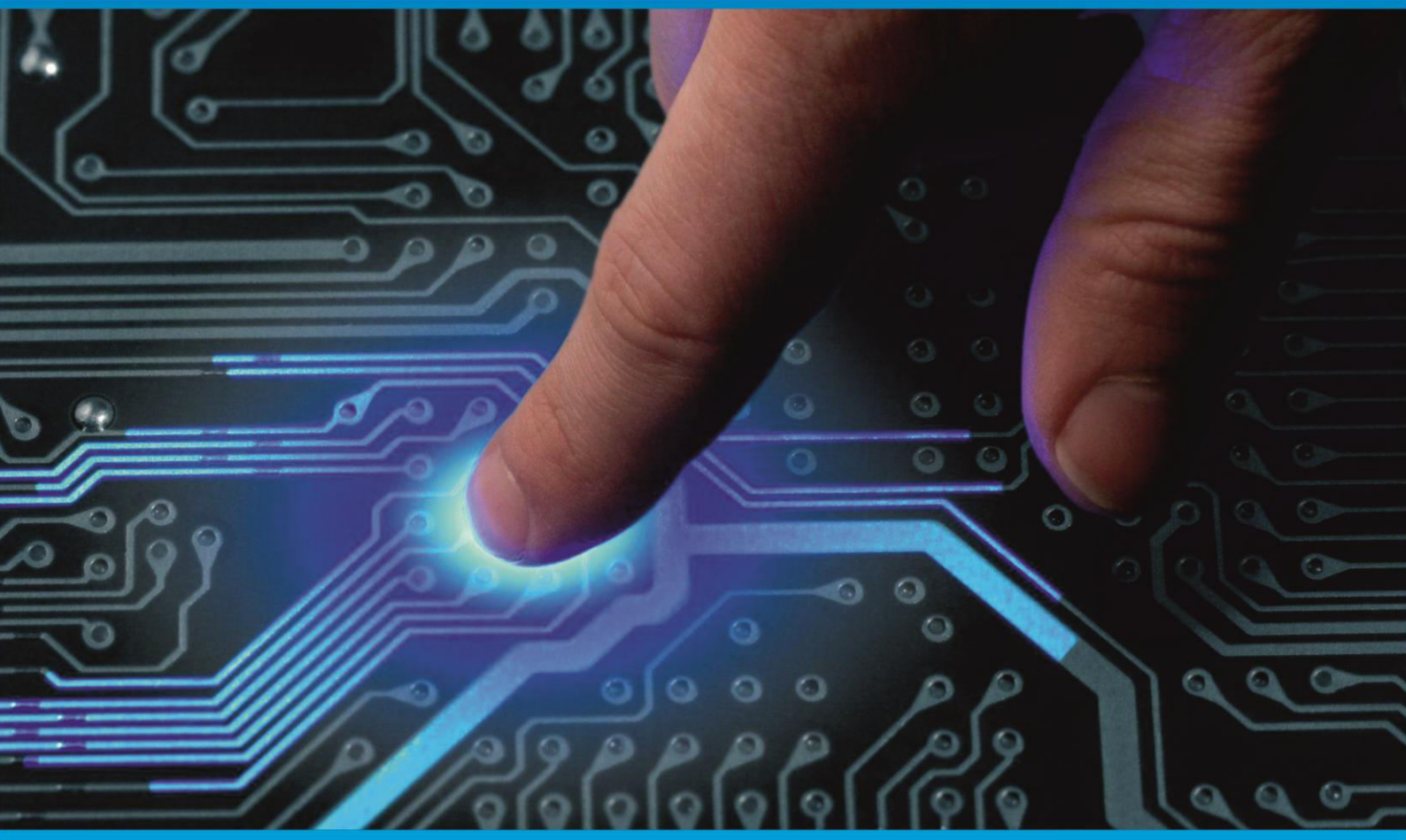

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Analysis from a Financial Perspective of BSNL

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ABSTRACT: Finance is the life blood for any organization and is always being disgregarded in financial decisio making since it involves investment and financing in short –term obligation.The telecom industry has contributed to the all round growth of the economy and the there in no gainsaying the contribution of the public sector role .BSNL in the Telecom industry is inevitable as „ co-existance“ of both private and public is the spirit of indian political economy Ratio analysis is a interpreting various ratios for helping in making decision.The study was considered nine years data(2000-01 to 2008-09) for calculated the population mean(μ),standard deviation,Margin error and standard error(S.E).

KEYWORDS: Population mean(μ),standard deviation,Margin error , standard deviation and standard error(S.E)

I. INTRODUCTION

Financial performance analysis is the process of determining the operating and financial characteristics of a company from its accounting and financial statements.The foal of such analysis is to determine the efficiency and performance of firm's management, as reflected in the financial records and reports.The analyst attempts to estimate a population parameter, estimate population variance,computer standard error,specify a confidence level,Find the critical value(often a z-score or a t-score),compute margin error and Define confidence interval.The same could be said by the suppliers and the peripheral equipment vendors.We can then argue that the most important stake holders in BSNL are infact its own employees.Our attempts is made then tries to focus on an assessment of the company's aperformance that views financial performance from the perspective of the employees. At the same time we wish to point out that it cannot offer a complete perspective because employees have much more at stake than just financial issues before them.

II. PROPOSED ANALYSIS APPROACH

1.Estimate a population parameter

In stastics, a population parameter is a number that describes something about an entire group or population .This should not be confused with parameter in other types of math, which refer to values that are held constant for a given mathematical function Note also that a population parameter is not stastics, which is data that refer toa sample, or subset, of a given population .with a well-designed study, you may be able to obtain a stastics that accurately estimates the true value of a population.

Population parameter

- In stastics , a population refers to all the members of a group of people or things. A population can be large or small depending on what you are interested in sdudying.
- A parameter is data that describesthe entire population, while a stastics is data that describes a sample of that population.
- A sample is part , or a subset , of a population.
- With a well-designed study, a sample stastics may provide an accurate estimate of a population parameter.

What is a population?

In stastics, a population refers to all the members of a group.A population can belarge or small depending on what you are interested in studying. For example, a population could be "all the residents of Germany"- which in 2017 was estimated to be about 83 million people - or" all the freshman in a certain high school – which can range from a single person to a couple thousand depending on the school.

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And though you may have heared the term "population" in reference to people, a population can refer to other groups of things as well .
For example, you may be interested in studying the population of birds things as well. For example , you may be interested in studying the population of birds that live near a certain beachside area, or the balloons by a specific manufacture.

Population vs, sample
No matter how large or small a population may be , a sample refers to a subset, or part, of that population may be , a sample refersto a subset, or part, of that population. For exampleif the number of freshman in a high school class is 100 , you may choose to study only 45 of the students.
Stastical studies typically use samples instead of populations because it may becostly, time-consuming , or simply impossible to find or reachout to everyone in a population. Nevertheless, if you are conducting a stastical study, you should try to design your study so that it accurately represents the population. For example , if you want a samaple representing all the people from every part of the country .you should also make sure your sample size , or number of things you are studying , is large enough so that your data becomes stastically significant: it accurately estimates the true stastics the true stastics regarding a population.

What is parameter?
You may have already heared of parameter in math, which are values that are held constant for a given mathematicalfunction . in stastics, the definition of parameter is different is different .A parameter is data that refers to something about an entire population is all the lunches that the students in X ahigh school eat on a certain day , a population parameter might bethat 35 percent of the lunches are brought from home.

Parameter vs. stastics
Parameters and stasticsare very similar in that they both say something about a group- for example,that "20% of M&Ms are the colored"-but the key difference is who arewhat they are describing .Whereas parameters refer to part of the that population ,or the sample of the population that was researched in a study.
For example , in the above example , instead of going through all the M&Ms in existence and counting how many red ones there are to obtain a population parameter , you may counthow many red ones there are to obtain a population parameter , you may count how many red M&Ms are in several packs to obtain your sample's stastics. If your study was designed well , the stastics you obtain should closely estimate the actual population parameter.

1.Population Parameter
Population mean(μ),population standard deviation(σ),Population proportion(P) Population size(N),Population data value(X),Correlation coefficient(r).

Population mean(μ)
The population mean is an average of a group of charestics.The group could be a person, item or thing :like all the people living in the United states" or" all dogowners in Georgia".A characteristic is just an item of interest.

The formula to find the population mean is
$\mu=(\sum *X)/N$
where:
$\sum$ means " the sum of."
X=all the individual items in the group.
N= the number of items in the group

population standard deviation(σ)
A stastic used as a measure of the dispersion or variation or set of data, equal to the square root of the arithmetic mean of the squares of the deviations from the arithmetic mean.
Formula
The formula to find the population standard deviation
(σ) =under root $\sum(X-\mu)^2/N$
Where
(σ)=standard Deviation
X=Terms Given in the Data

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μ=Mean
n=Total numbers of Terms

Population proportion(P)
A population proportion always ranges between 0 and 1 (or0% to 100% in percentage terms) and it is calculated as follows:
Formula of population proportion
P=X/N
Where
P=The population proportion
X=The count of individuals in a population with a certain characteristic
N=The total number of individuals in a population.

correlation Ccoefficient(r).
The linear correlation coefficient defines the degree of relation between two variables and is denoted by "r". it is also called as cross correlation coefficient as it predicts the relation between two quantities.Now let us proceed to a statistical way of calculating the correlation coefficient.

Formula of correlation coefficient(r)

$$r = n(\sum xy) - (\sum x)(\sum y)/[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]$$

Here,
n=Numbers of values or elements
\sum∑ x=sum of 1st values list
\sum∑y=sum of 2nd values list
\sum ∑xy=sum of the product of 1st and 2nd values
\sum∑x^2=sum of squares of 1st values
\sum∑y^2=sum of squares of 2nd values

2.compute standard error
The standard deviation of the probability function or probability density function of a random variable and especially of a statistic specifically : the standard error of the mean of a sample from a population with a normal distribution that is equal to the standard deviation of the normal distribution divided by the square root of the sample size.
Formula of standard error
S.E= σ/under root (n)
Where
(σ) =standard deviation
N=number of samples

4.Specify a confidence level
In a survey sampling , different samples can be randomly selected from the same population and each sample can often produce a different confidence interval. Some confidence intervelinclude the true population parameter;
Others do not
A confidence level refers to the percentage to all possible samples that can be expected toinclude the true population parameter.For example, suppose all possible sample were selected from the same population, and a confidence interval were computed for each sample .A 95% confidence level implies that 95% of the confidence intervals would include the true population parameter.

Calculating confidence intervals orlevels for large samples
When you use a confidence level in statistics, you usually need it to calculate a confidence interval .This is a bit easier to do if you have a large sample ,for example ,over 30 people, because you can use Z score for your estimaterather than more complicated t scores.
Take your raw data and calculate the sample mean(simply add up the individual results and divide by the number of results).Calculate the standard deviation by subtracting the mean from each individual results to find the difference and then square this difference. Add up all of these differences and thendivide the result by the sample size minus 1.Take the square root of this result to find the sample standard deviation.
Determine the confidence interval by first findingthe standard error:
S=s/under root(n)

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Where is your sample standard deviation and n is your sample size. For example ,if you took a sample of 1,000 men to figure the average weight of a man, and got a sample standard deviation of 30 , this would give :
S = 30/under root(1000)=0.95
To find the confidence interval from this , look up the confidence level you want to calculate the interval for in a Z –score .for a 95percent confidence level the Z-score is 1.96 using the example ,this means:
Mean ±Z*SE=180 pounds±1.96*0.95=180±1.86pounds
Here, ± 1.86 pounds is the 95 percent confidence interval.
If you have this bit of information instead ,along with the sample size and the standard deviation, you can calculate the confidence level by using the following formula:
Z=0.5*size of confidence interval*under root(n)/s
The size of the confidence interval is just twice the ± value , so in the example above, we know 0.5 times this is 1.86 Thisgives:
Z=1.86*under root(1000)/30=1.96
This gives us a value for Z , which you can look up in a Z –score table to find the corresponding confidence level

Calculating confidence intervals for small samples
For small samples , there is a similar process for calculating the confidence interval l.First , subtract 1 from your sample size to find your "degree of freedom", in symbols
df = n-1
for a sample n=10, this gives df=9.
Find your alpha value by subtracting the decimal version of the confidence level divided by 100) from 1 and dividing the result by 2 , or in symbols:
(α) =(1-decimal confidence level)/2
So for a 95 percent (0.95) confidence level:
(α)=(1-0.95)/2=0.025

What is critical value?
In hypothesis testing, a critical value is a test distribution that is compared to the test stastistics to determine whether to reject the null hypothesis.If the absolute value of your test stastistics is greater than the critical values , you can declare stastical significance and reject the null hypothisis .Critical values correspond α , so their value become fixed when you choose the test's α

Formula to calculate z-score
z-score of raw data refers to the score generated by measuring how many standard deviations above or below the population mean is the data, which helps in testing the hypothisis under consideration .in other words, it is the distance of a data point from the population mean that is expressed as a multiple of the standard deviation.

- The z-score vary in the range of -3 times the standard deviation(far left of the normal distribution) to +3 times the standard deviation (far right of the normal distribution).
- The z-score have a mean of 0 and a standard deviation of 1.
  Formula of z-score
  Z=x-μ/ (σ)
  Where
  X=Datapoint
  μ=Mean
  (σ)=standard deviation
  What is the T- score formula?

A t-score is one form of a standardized test statistics(the other you'll come across in elementary stastics is the z-score). The t-score formula enables you to take an individual score and transform it into a standardized form> one which helps you to compare scores.
You'll want to use the t-score formula when you don't know the population standard deviation and you have a small sample (under 30)

Formula of t-score
$T=x-(\mu_0)/s$
Where

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x=sample mean
(μ_0)=population mean
S=sample standard deviation
N=sample size

Margin of Error Formula

In statistic , we calculate the confidence interval to see where the value of thedata of sample statistic will fall. The range of values which are below and above the sample statistic in a confidence interval is known as Margin of error in other words ,it is basically the degree of error in the sample statistic . Higher the margin of error , lesser will the confidence in the result because the degree of deviation in these results is very high.As its name suggests , the margin of error is a range of values above and below the actual results.For example, if we get a response in a survey wherein 70% people have responded"good" and margin of error is a range of values above and below the actual results.For example , if we get a response in a survey wherein 70% people have responden"good" and margin of error is 5% , this means that in general, 65% to 75% of the population think that the answer is "good".

The formula for margin of error-

Margin of error = Z *S/under root(n)

Where

Z=Z-score
S=Standard Deviation of a population
N=Sample size

Define confidence interval

The confidence interval formula in statistics is used to describes the amount of uncertainity associated with a sample estimate of a population parameter .it describes the uncertainity associated with a sampling method.

To recall, the confidence interval is a range within most plausible values would occur.To calculate the confidence interval, one needs to set the confidence level as 90% of the interval estimates to include the population parameter ; 95% of the intervals would include the parameter and so on.

Formula for confidence interval

If n>30	Confidence interval =x±$z_{\alpha/2}$(σ/under root(n))
Ifn<30	Confidence interval=x± $t_{\alpha/2}$(s/under root (n))

Where
n = Number of terms
$\bar{x}$=sample mean
(σ)= standard deviation
($z_{\alpha/2}$) =value corresponding to (α2) in z table
($t_{\alpha/2}$) = value corresponding to (α2) in t table

Summary of Financial performance Analysis for the period of 2000-01 to 2008-09

Financial year	Profit in (Crores)	X-μ	$(x-\mu)^2$	z-score (x-μ)/(σ)	Margin error (Z*s)/(under root(n))
2000 to 2001	747	-4251.88	18,078,483.5	-1.23	-1,415.004
2001 to 2002	6312	1313.12	17,24,284.13	0.38	437.15
2002 to 2003	1444	-3,554.88	12,637,171.8	-1.03	-1184.92
2003 to 2004	5976	977.12	954,763.494	0.28	322.11
2004 to 2005	10183	5,184.12	26,875,100.2	1.50	1725.61
2005 to 2006	8939	3940.12	15,524,545.6	1.14	1,311.46
2006 to 2007	7805	2,806.12	787,4309.45	0.81	931.83
2007 to 2008	3009	-1989.88	3959,622.41	-0.57	-655.73
2008 to 2009	575	-4423.88	19,570,714.3	-1.28	-1,472.52
	Total profits=44990		Total =107,198,995		

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Population mean (μ)=(∑X)/(N)

μ= (44990)/(9)

=4,998.88

Standard deviation (σ) = √ [∑(X-μ)^2/(N)]

=√107,198,995

= 3,451.23

Standard error = (σ)/(√n)

= (3,451.23)/(3)

= 1,150.41

III. FUTURE SCOPE& DISCUSSION

In this section , an attempt has been made to measure the financial position of the company i.e. , BSNL over a period of nine years i.e, from 2000-01 to 2008-09. For the purpose analyzing financial performance it is used the ratio analysis as tool and ll most all the major and relevant ratios have been employed to find out the profitability and liquidity position of the copany. It is also calculted an population mean(μ), standard deviation, standard error(S.E),Z-score and Margin error for all the years and for all the ratios employed.

IV. CONCLUSION

From the study of the financial performance of the BSNL it is concluded that the average of profit is good in crores and standard deviaiton is average comparison to population mean and standard error and Z-score can be negative ,positive or 0 ,and they can have a decimal portion as well.A data value in a data set that is equal in value to the mean of the data set has a z-score that is equal to 0.In our financial perfonance analysis z-score available in the form of negative and posative.

REFERENCES

1) R.C . Upadhyaya and Vashundhara Sharma(December-2012)-A comparative study Talecommunication service provider BSNL and AIRTEL operating in Gwa lior Divisionindia – International journal of …
2) Amalendu Bhunia, Somnath Mukhuti and Gautam Roy (2011) . Financial performance Analysis- A case study. Current Research .Journal of social sciences 3(3):269-275.
3) Altman, E.I and A.C .Eberhart,(1994).Do seniority provisions protect Bondholer Investments? Journal of portfolio Management .summer,(20(4): 179-194.
4) Eljelly, A.,(2004). Liquidity-profitability trade off:An Empirical Investigaiton in EmergingMarket. International Journal of Commerce & Management .14(2): 48-58.
5) Gepp,A.and K.Kumar,(2008).The role of survival Analysis in Finalysis Distress Prediction.International Research Journal of Finance & Economics.,16:13-34.
6) Panwala ,M.,(2009).Dimensions of Liquidity Management-A case study of the surat Textile'sTraders Cooperative Bank Ltd., Journal of Accounting Research.2(1):69-78.
7) Rajesh, M.andN.R.V. Ramana Reddy,(2011).Impact of working, capital Management onFirms' profitability . Global journal of Financial Management.3(1): 151-158.
8) Lazaridis, I .,(2007). Relationship between working capital MANAGEMENT AND PROFITABILITY OF LISTED COMPANIES IN THE Athens stock Exchange.Journal of Financial Manangement Analysis 19(1):26-35.
9) Anush Gupta (April-2015) – Financial performance Evaluation of Telecommunication with special reference to (oct-2015)-An Analysis of the Indian Telecom Industry ISOR Journal of Business and Management 17 ,Issue10.Ver.II,PP 35-42.
10) Chhaya p.patel and Smt.K.K.patel (April-2014)-study on performance Appraisal system in BSNL VSRD International Journal of Business and Management Research ,Vol.IV , IssueIV.

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