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Nehruvian Commanding Heights of the Economy - A Glimpse of Central Public Sector Enterprises during Second Generation Reform Period (2000 to 2014)

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Abstract:

Public Sector Enterprises had been set up in the post-independent era in the core and strategic sectors of steel, heavy industries, power, coal, fertilizers etc. In this context, this paper tries to analyze the performance of Central Public Sector Enterprises against the backdrop of liberalization measures especially during the second generation reform period – i.e. 2000 onwards till 2013-14. Through the findings one can conclude that performance has been better during the above stated period acknowledging the structural changes with respect to CPSE’s (disinvestment, memorandum of understanding etc.

Keywords: CPSE’s, profits, financial ratios, turnover, net worth

1. Introduction

Public sector enterprises have been set up to serve the broad macro-economic objectives of higher economic growth, self-sufficiency in production of goods and services, long term equilibrium in balance of payments and low and stable prices. Many of the CPSEs are also in the allocative business of natural resources. As on 31.3.2014 there were 290 Central Public Sector Enterprises consisting of 234 operating CPSEs and 56 CPSEs under construction. The turnover of all 234 operating CPSEs during 2013-14 stood at 20,61,866 crores as compared to 19,45,814 crores of 230 operating CPSEs in the previous year.

Indian PSUs have developed a formidable franchise, with leadership positions in sectors like Oil & Gas, Financials, Utilities, Mining and Heavy Engineering controlling 60%-90% market share. Over the years, they have played a significant role in the growth of the Indian economy. Central and State PSUs contribute 26% to the national GDP.

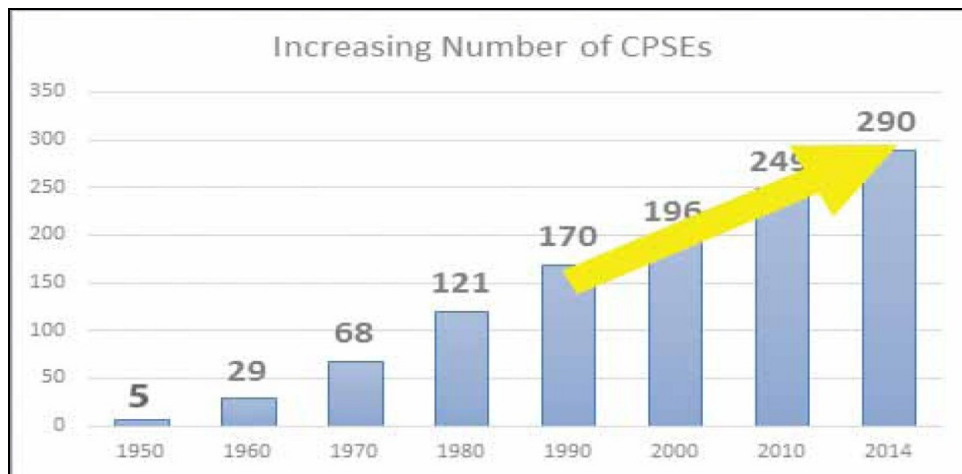


Figure 1: Number of CPSE’s in Operation

Source: dpe.nic.in

The major portion of turnover of CPSEs is coming from Petroleum (Refinery & Marketing), Coal, Crude Oil, Steel, Electricity (Power Generation), and Trading and Marketing services. However, there were considerable variations within the cognate groups.

2. Review of Literature

- Shirley, Mary & Nellis – (1992) Public Enterprise Reform: The Lessons of Experience; covers some criteria, that is classified into two major groups. Partial indicators – productivity of individual factors, cost effectiveness and partial business ratio. Multiple indicators – are labour productivity, ratio of production to its capacity, production record and production capacity.
- Ramprasad Sengupta, (2007) in his work on ‘Technical Change in Public Sector Industry’ took the case study of Steel industry that is State-controlled. The purpose of the paper is two-fold; examine the rationality of the government’s price policy for steel with reference to profitability criteria and all the possible bottlenecks brought in – like the recession, infrastructure bottlenecks, state of industrial relations, organizational inefficiency of public sector managerial manpower etc.
- Prajapati Trivedi, (1986) in his ‘Public Enterprises in India – If not for Profit Then for What?’, evaluated this statement in the light of private enterprises; which is mainly attributed to the ‘drag effect’ caused by the inefficiency of these public enterprises. This article basically throws light on, emphasis in terms of better utilization of existing public enterprises through performance evaluation. It basically concentrates on appropriate incentive schemes and other institutional requirements necessary for good performance.
- The World Bank Group Study on ‘Corporate Governance of Central Public Sector Enterprises’, (June 2010) – this report carries the reviews and offers recommendations for improving CPSE governance. It is based on a review of the legal and regulatory framework, the findings and reports carried out by various commissions, including case studies of two leading CPSE’s – the Oil and Natural Gas Commission and National Thermal Power Corporation. The recommendations included – strengthening the state’s ownership role, professionalization of CPSE Boards and enhancing transparency and disclosure.
- Study undertaken by Deloitte, ‘Public Sector Enterprises in India-pursuing the triple bottom line’, (September 2011) has used a set of three criteria to measure organization’s success (which was first coined by John Elkington, 1998), which was social (people), ecological (planet) and economic (profits). With respect to the stated criteria, the study threw light to certain CSR policies of these public enterprises by giving extensive examples.

2.1. Scope of the Study

The importance of the paper lies in highlighting some important variables pertaining to central public sector enterprises like profitability, investment, capital employed etc.

3. Data and Methodology

The study is carried out with the help of secondary data relating to CPSE’s. The sources for data are – Handbook of Statistics of Indian Economy, RBI Reports
Dpe.nic.in

Public Enterprises Survey – various issues

The collated data has been analyzed using appropriate statistical tools such as – annual growth rate, percentages, regression analysis, pictorial depictions etc.

4. Objectives of the Study

4.1. To Highlight the plan-wise Financial Investment in CPSE’s

Particulars	Investment (in crores)
I FYP	29
II FYP	81
III FYP	2410
IV FYP	3897
V FYP	15534
VI FYP	18150
VII FYP	99329
VIII FYP	213610
IX FYP	324614
X FYP	420771
XI FYP	666848

Table 1: Plan-wise Investment in CPSE’s
Source: dpe.nic.in

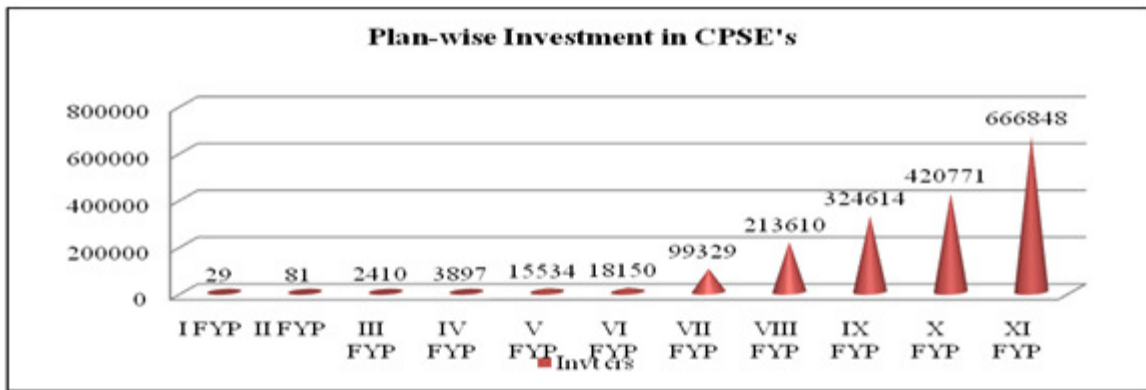


Figure 2

From the above Figure , one can observe that the Investment into CPSE's are on the rise with respect to Five Year Plans apart from the original investments that the Government does to run its own enterprises. Inspite of the policy of Privatisation, still the importance of State enterprises is realized, which can be indirectly seen by the rising investment into this sect of enterprises.

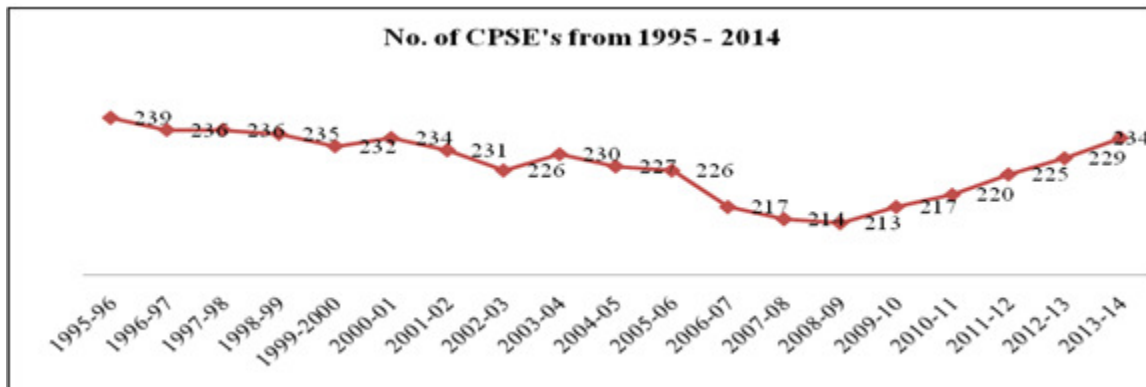


Figure 3

Emphasis on restructuring of PSUs is clearly visible especially during the post-reform period. The then to the current government proposes to a 'SECURE' framework to turn around PSUs' performance. However, divestment would also be a necessity to further the development agenda. The government is expected to keep the PSUs of strategic and social importance but restructure them, and increase divestment in others (or even privatize them). This is the reason behind the fluctuation in terms of number of operating enterprises.

To trace the cause and effect relationship between select variables pertaining to the Indian CPSE's (consolidated)

Year	Capital employed	Turnover	Tax provision	PBT	Net Profits	Dividend	Employment**	Annual average per capita Emoluments
2003-04	452336	630704	22134	75077	15288	53084	17.62	248481
2004-05	504407	744307	21662	86625	20718	65429	17	286112
2005-06	585484	837295	24370	93906	22886	69536	16.49	284123
2006-07	661338	964890	34352	115407	26819	81055	16.14	398496
2007-08	724009	1096308	40749	122023	28123	81274	15.65	410898
2008-09	792232	1271529	33828	117695	25501	83867	15.33	541716
2009-10	908007	1244805	22134	132221	33223	92203	14.91	609816
2010-11	1153947	1498018	44871	136951	35700	92129	14.4	683347
2011-12	1387821	1822049	48986	147231	42627	98246	14.5	728606
2012-13	1510373	1945777	51008	166308	49701	114981	14.02	830349
2013-14	1715684	2061866	55077	183936	65115	129109	13.5	888305

Table 2: Select Variables pertaining to CPSE's (in Rs crores)

Source: dpe.nic.in ** - employment (in lakhs)

The above stated variables are tested and related to profits of the overall CPSE's – which is analyzed through MLR using SPSS

Net Profits – dependent variable

Independent Variables are –

X1 – capital employed

X2 – Turnover

X3 – Tax provisions

X4 – dividends

X5 – average annual emoluments

The following is the Regression model –

$$NP = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \mu$$

To test the significance of the above model, the following hypothesis is framed and tested.

- H0: there is no significant impact of the independent variables on the dependent variable
- H1: there is a significant impact of the independent variables on the dependent variable

The above model bears the following result –

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.998(a)	.996	.990	1761.225	2.729

Table 3: Model Summary (b)

a Predictors: (Constant), annual average emoluments, tax provisions, dividend, turnover, Capital

b Dependent Variable: net profit

R square value reads as 99.6% meaning that the independent variables influence Net Profits of CPSE's to the extent of 99.6% and the remaining 0.4% is by residual factors.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2803025814.622	5	560605162.924	180.729	.000(a)
	Residual	12407653.778	4	3101913.444		
	Total	2815433468.400	9			

Table 4: ANOVA (b)

a Predictors: (Constant), annual average emoluments, tax provisions, dividend, turnover, Capital

b Dependent Variable: net profit

The p value 0.000 is less than α value (i.e.) 0.05, which lends itself to the fact that Ho is rejected and H1 is accepted.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B			Collinearity Statistics
1	(Constant)	25008.068	2836.340		8.817	.001	17133.126	32883.011		
	Capital	-.081	.014	-1.694	-5.915	.004	-.120	-.043	.013	74.431
	Turnover	.031	.010	.789	3.044	.038	.003	.060	.016	60.956
	tax provisions	-.122	.178	-.076	-6.684	.531	-.615	.372	.090	11.148
	Dividend	2.268	.307	1.336	7.388	.002	1.415	3.120	.034	29.684
	annual average emoluments	.054	.015	.630	3.606	.023	.012	.096	.036	27.679

Table 5: Coefficients (a)

a Dependent Variable: net profit

Testing for Multicollinearity (i.e.) to check for high inter dependence among the Independent variables – it is observed that Capital and Turnover experience very high VIF, thus re running the Regression model by removing Capital and Turnover from the model.

$$NP = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \mu$$

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.978(a)	.956	.933	4561.672	1.310

Table 6: Model Summary (b)

a Predictors: (Constant), annual average emoluments, tax provisions, dividend
 b Dependent Variable: net profit

The above model summary states that Net Profits are together influenced by Tax provisions, Dividends and Annual average emoluments to the extent of 95.6% and the remaining 4.4% by the remaining factors.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2690580377.414	3	896860125.805	43.100	.000(a)
	Residual	124853090.986	6	20808848.498		
	Total	2815433468.400	9			

Table 7: ANOVA (b)

a Predictors: (Constant), annual average emoluments, tax provisions, dividend
 b Dependent Variable: net profit

The p-value < α value concludes on the fact that one accepts the alternative hypothesis.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
				B	Std. Error	Beta	Upper bound	Lower bound	Tolerance	VIF
1	(Constant)	33095.319	6097.212		5.428	.002	18175.979	48014.660		
	tax provisions	.277	.426	.173	.649	.540	-.766	1.320	.105	9.558
	dividend	.969	.493	.571	1.968	.097	-.236	2.174	.088	11.398
	annual average emoluments	.022	.026	.251	.828	.440	-.042	.085	.080	12.483

Table 8: Coefficients (a)

a Dependent Variable: net profit

Checking for multicollinearity statistics, it is found that out of the selected three independent variables, Average annual emoluments experiences high VIF value – thus removing the same from the stated model.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.975(a)	.951	.936	4457.807	1.768

Table 9: Model Summary (b)

a Predictors: (Constant), dividend, tax provisions
 b Dependent Variable: net profit

Tax provisions and Dividends together influences consolidated Net Profits to the extent of 95.1% and the remaining 4.9% by the other factors.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2676329181.516	2	1338164590.758	67.339	.000(a)
	Residual	139104286.885	7	19872040.984		
	Total	2815433468.400	9			

Table 10: ANOVA (b)

a Predictors: (Constant), dividend, tax provisions
 b Dependent Variable: net profit

The p-value obtained is less than α value, which leads one to accept the alternate hypothesis that, there is a significant impact of the independent variables on the dependent variable, namely Net Profits.

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.	95% Confidence Interval for B		Collinearity Statistics
		B	Std. Error	Beta	Lower bound			Upper bound	Tolerance	
1	(Constant)	30617.647	5190.592		5.899	.001	18343.848	42891.445		
	tax provisions	.443	.367	.276	1.206	.267	-.426	1.312	.135	7.435
	dividend	1.210	.389	.713	3.111	.017	.290	2.129	.135	7.435

Table 11: Coefficients (a)

a Dependent Variable: net profit

Checking for multicollinearity, it is observed from the above coefficient table that, the Variance Inflation Factor of Tax and Dividends are within 10 (7.4 each), which negates high degree of correlation among the independent variables.

Therefore, the final equation –

$$NP = \alpha + \beta_1 Tp + \beta_2 D + \mu$$

$$\text{Net Profits} = 30617.6 + 0.443 Tp + 1.2 D + \mu$$

Thus, it can be concluded that Dividends have more impact on net profits compared to Tax provisions.

To associate Turnover with that of Capital Employed pertaining to CPSE's – Using Simple Distributed Lag model

The Distributed Lag Model includes lagged values of Turnover, which would in turn have its impact on current decisions relating to Capital employed.

- H0: Capital employed (t) is not influenced by Turnover of the previous period (t-1)
- H1: Capital employed (t) is influenced by Turnover of the previous period (t-1)

$$(\text{Capital employed})_t = \text{fn}(\text{Turnover})_{t-1}$$

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.989(a)	.978	.975	58364.595	1.183

Table 12: Model Summary (b)

a Predictors: (Constant), turnover

b Dependent Variable: Capital

(Turnover)_{t-1} influences (Capital employed)_t to the extent of 97.8% and the remaining 2.2% by the other factors.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1192946883442.083	1	1192946883442.083	350.205	.000(a)
	Residual	27251407324.318	8	3406425915.540		
	Total	1220198290766.400	9			

Table 13: ANOVA (b)

a Predictors: (Constant), turnover

b Dependent Variable: Capital

As the p value is less than α value – H1 is accepted.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-122265	56042.529		-2.182	.061	-251499.716	6968.892
	turnover	.821	.044	.989	18.714	.000	.720	.923

Table 14: Coefficients (b)

a. Dependent Variable: Capital

Finally, the equation reads as follows –

$$Ke = -122265 + .821T$$

1-unit increase in Turnover in the previous period influences capital employed in the current period by 0.821 times.

To highlight the Actual and Trend values of Turnover of CPSE's (2000-01 to 2013-14 and forecast up to 2019-20

Year	Turnover	X	X square	XY	Y = a+bX
2000-01	458237	-6.5	42.25	-2978540.5	284304.85
2001-02	478731	-5.5	30.25	-2633020.5	412294.75
2002-03	572833	-4.5	20.25	-2577748.5	540284.65
2003-04	630704	-3.5	12.25	-2207464	668274.55
2004-05	744307	-2.5	6.25	-1860767.5	796264.45
2005-06	837295	-1.5	2.25	-1255942.5	924254.35
2006-07	964890	-0.5	0.25	-482445	1052244.25
2007-08	1096308	0.5	0.25	548154	1180234.15
2008-09	1271529	1.5	2.25	1907293.5	1308224.05
2009-10	1244805	2.5	6.25	3112012.5	1436213.95
2010-11	1498018	3.5	12.25	5243063	1564203.85
2011-12	1822049	4.5	20.25	8199220.5	1692193.75
2012-13	1945777	5.5	30.25	10701773.5	1820183.65
2013-14	2061866	6.5	42.25	13402129	1948173.55
Total	15627349	0	845	29117717.5	
2014-15		7.5	56.25		2076163.45
2015-16		8.5	72.25		2204153.35
2016-17		9.5	90.25		2332143.25
2017-18		10.5	110.25		2460133.15
2018-19		11.5	132.25		2588123.05
2019-2020		12.5	156.25		2716112.95

Table 15: Actual and Trend Values of Turnover pertaining to CPSE's
Source: dpe.nic.in

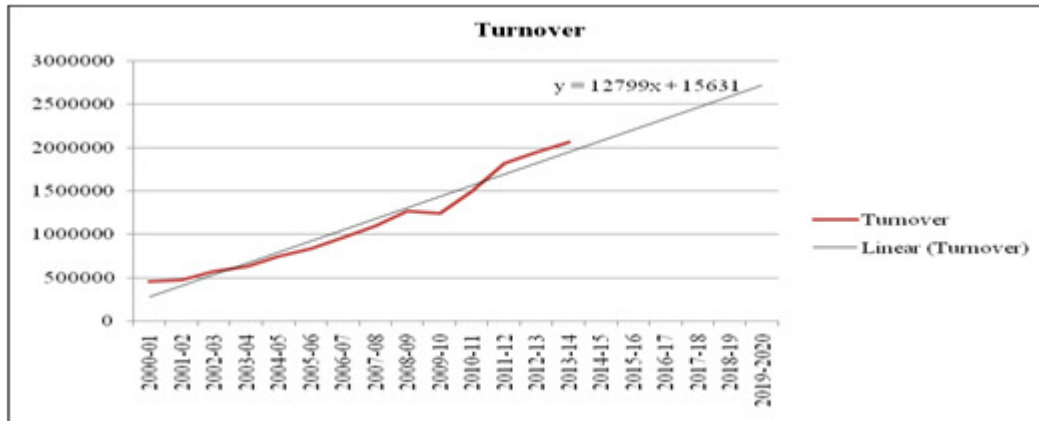


Figure 4

The above table and Figure depicts the Total Turnover of the total operating CPSE's for the above stated time period. The actual Turnover has been on a rise except for some fluctuations during post-recession period cum end of first generation reform period. The Trend Line shows steep increase and the forecast value for 2018-19 and 2019-2020 is 2588123.05 and 2716112.95 crores respectively.

To examine the Retention Ratio of the total of CPSE's from 2003 to 2013.

Year	Overall Profits	Retained Profits	Retention Ratio
2003-04	52943	35835	0.68
2004-05	64963	41394	0.64
2005-06	69536	43435	0.62
2006-07	81055	50129	0.62
2007-08	81274	48429	0.60
2008-09	83867	54233	0.65
2009-10	92203	53820	0.58
2010-11	92129	51056	0.55
2011-12	98246	49741	0.51
2012-13	115298	58894	0.51

Table 16: Retention Ratio of CPSE's (2003-04 to 2012-13)
Source: dpe.nic.in

Retention ratio is computed by – Retained profits / Overall profits of the respective year. Retention ratio happens to be one of the parameters to conclude on the profitability cum efficiency criteria of an enterprise.

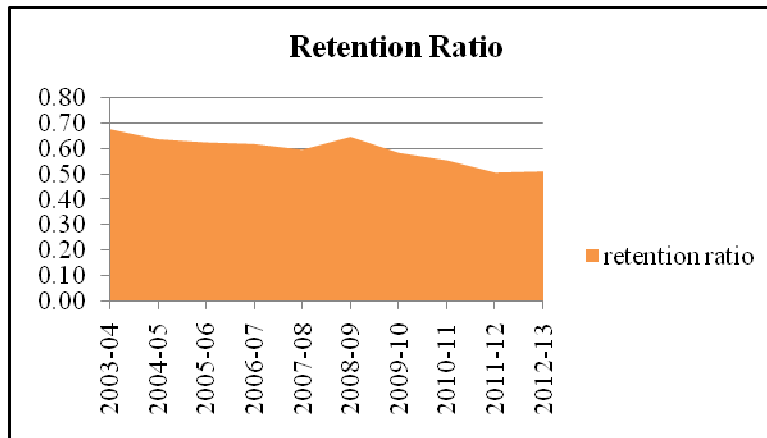


Figure 5

The retention ratio has been fluctuating between 0.5 to 0.7. It is found that the overall profits have been increasing. But the Retained profits have declined from 2007, which is reflected by the decelerating ratio in the latter period.

4.2. Summary of Findings

- Plan-wise allocation for CPSE's from I to XII FYP is on a steep rise
- No. of operating CPSE's have been fluctuating from 239 to 234 due to the structural framework of the PSE's
- Analyzing the factors that influence the Total Net Profits of all CPSE's – it is found that Dividends have more impact than Tax provisions on the same. Capital employed, Turnover, Average annual emoluments were removed from the model due to multicollinearity.
- Turnover of the previous time period has an impact on Capital Employed pertaining to the current period to the extent of 97.8%
- The actual Turnover shows a steady rise and the forecast value for 2019-2020 is 2716112.95 crores
- The recent years have been witnessing declining retention ratios.

4.3. Limitations of the Study

- In depth study is not undertaken
- No comparative analysis carried out
- Cognate-wise or individual CPSE dimension is not covered

4.4. Emerging Perspective

Corporate economy is transforming with change in leadership. Under the new reigns, the PSU's have been endowed with more autonomy and enhanced authority in its operations. Emphasis is laid on restructuring rather than retire outlook. The likely winners according to D&B study are – ONGC, BHEL, NTPC and BPCL. The recent government at the center is resolved to harness PSU performance to the maximum possible extent and pursue divestment with renewed vigour. Indian CPSE's have been undertaking several structural changes and operational reforms which would certainly expand their capabilities.

5. References

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