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Financial and Operating Performance of Petroleum and Metals & Minerals Sectors in India – Evidences before and after Disinvestment

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Abstract

This article examines the financial and operating performance of companies belonging to Petroleum and Metals & Minerals sector, before and after disinvestment. The operating performance of the companies is measured using three items - operating performance based on sales, operating performance based on investment and asset usage. The financial performance is measured using two items, corporate liquidity and corporate solvency. The study covers all the ten companies in Petroleum sector and four in the Minerals and metals sector which have undergone disinvestment from 1992-93 to 2007-08. Data for five years before and after the disinvestment is collected. The analysis is done using Paired T test. Analysis shows that there is significant improvement in the liquidity of both sectors after disinvestment.

Keywords*: Disinvestment, Operating performance, Financial performance*

1. Introduction

Public sector undertakings in India were viewed as a mechanism for structural transformation of the economy and to ensure economic growth with equity and social justice. Eventually, the perception that public sector should acquire the commanding heights of the economy, led to Government involvement in diverse areas of economic activity, many of which could have been performed by the private sector. The public sector thus lost its original role and strategic focus, and shifted to supply of goods and services on subsidized rates and creation of employment. This led to inefficiencies, neglect of resource mobilization for modernization, increased dependence on unproductive borrowings, lack of motivation to improve efficiency and increase in fiscal deficit of the Government. The process of disinvestment in India began in 1992 under the aegis of new economic liberalization policy put forward then Finance Minister, Dr. Manmohan Singh. Disinvestment was supposed to be a tool in the hands of the Government to improve the functioning and profitability of public sector enterprises and also to raise funds to mitigate its fiscal deficits.

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In the context of this study, disinvestment means the sale of shares of public sector undertakings by the government. The shares of government companies held by the government are earning assets at the disposal of the government. If these shares are sold to get cash, then earning assets are converted into cash. So it is referred to as disinvestment (Nanjundappa, 1998). According to Sudhir (2003), there are two major reasons given by the government for disinvestment. One is to provide fiscal support and the other is to improve the efficiency of the enterprise. The fiscal support argument runs as follows: Government`s resources are limited. These resources should be devoted to areas of social priority such as basic health, family welfare, primary education and infrastructure. More resources can be devoted to these priority areas by releasing resources locked up in nonstrategic public sector enterprises. The demands on the governments, both at the centre and in the states are increasing. There is need to expand the activities of the state in priority areas. It is, therefore, legitimate that a part of the additional resources needed for supporting these activities are derived from the sale of shares built up earlier by the government out of its resources.

The second reason for disinvestment is that it will improve the efficiency of the working of the enterprise. If the extent of disinvestment is such that the enterprise is privatized and management of the enterprise is taken over by the private sector, it will be free from the control of the government and will be able to function more efficiently. It is here taken for granted that efficiency is higher for a private sector than for a public sector unit. Even if the extent of disinvestment is less than 50 percent, the induction of private ownership can have a salutary effect on the functioning of an enterprise. It increases the accountability of management. The share-holders have expectations about returns on their investments and their expectations are to be fulfilled. This will compel the enterprise to run more efficiently and earn more profits. Flexibility in ownership structure can, in effect, impart efficiency.

Patnaik (2006) argues that the main rationale for disinvestment is to increase the efficiency in utilization of resources (labour and capital) of the economy. Researchers have opined that the divestment of public sector enterprises is an economic necessity (Sankar & Mishra, 1994). Sankar & Reddy (1989) have presented the decision of divestment into a matrix form and have stated that state owned enterprises (SOEs) are considered high or low on three factors, namely, social purpose, profitability and resource mobilization. According to their model, SOEs operating in competitive markets having low social purpose and also low resource mobilization are most suitable candidates for disinvestment. Even partial privatization, with the government retaining control, has yielded improved productivity. Disinvestment of profit-making enterprises by public offering of shares is desirable as it leads to dispersed shareholding and avoids concentration of economic power (Patnaik, 2006).

Table 1: Government share after disinvestment in the public sector enterprises of India

Cognate group	Percentage of disinvestment	Percentage of total Govt. holding after disinvestment
1. Steel		
(a) Steel Authority of India Ltd.	14.18	85.82
2. Minerals & Metals		
(a) Hindustan Copper Ltd.	1.24	98.76
(b) Hindustan Zinc Ltd.	24.08	75.92
(c) Kudermukh Iron & Ore Co. Ltd.	1.00	99.00
(d) National Aluminum Co. Ltd.	12.85	78.38*
(e) National Mineral Development Co.	1.62	96.36*
3. Petroleum		
(a) Bharat Petroleum Corporation Ltd.	33.80	66.20
(b) Bongaingaon Refinery and Petro Chemical Ltd.	25.54	74.46
(c) Cochin Refinery Ltd.	6.12	55.04*
(d) Gas Authority of India Ltd.	17.03	82.97
(e) Hindustan Petroleum Corporation Ltd.	48.94	51.06
(f) Indian Oil Corporation Ltd.	18.74	81.14*
(g) Madras Refineries Ltd.	16.92	53.80*
(h) Oil and Natural Gas Corporation	16.38	83.62
4. Fertilizers		
(a) Fertilizers & Chemicals Ltd.	1.70	97.30
(b) National Fertilizers Ltd.	2.35	97.65
(c) Rashtriya Chemcials & Fertilizers Ltd.	7.50	92.50
5. Chemical & Pharmaceuticals		
(a) Hindustan Organic Chemical Ltd.	41.39	58.61
(b) Indian Petrochemicals Corporation Ltd.	40.05	59.95
6. Heavy Engineering		
(a) Bharat Heavy Electrical Ltd.	32.28	67.72
7. Medium and Light Engineering		
(a) Bharat Electronics Ltd.	24.14	75.86
(b) Andrew Yule	9.60	62.84*
(c) Hindustan Machine Tolls Ltd.	8.44	91.56
(d) Indian Telephone Industries	22.98	76.67*
8. Transport Equipment		

(a) Bharat Earth Movers Ltd.	39.19	60.81
Enterprises Rendering Services		
9. Transport Services		
(a) Container Corporation of India Ltd.	36.92	63.08
(b) Dredging Corporation of India Ltd.	1.44	98.56
(c) Shipping Corporation of India Ltd.	19.88	80.12
10. Telecommunication Services		
(a) Mahanagar Telephone Nigam Ltd.	43.80	56.20
(b) Videsh Sanchar Nigam Ltd.	47.00	53.00

**The balance equity is held by state Governments/other collaborators.*
Source: Department of Disinvestment, India (2014)

The objective of this article is to examine the financial and operating performance of companies belonging to Petroleum and Metals & Minerals sector, before and after disinvestment. This paper is organized as follows; Section 1 gives an introduction followed by section 2 on review of literature. Section 3 and section 4 explain the research methodology and analysis, followed by the concluding remarks in section 5.

2. Review of literature

The impact of disinvestment on the performance of the companies has been an area of interest for the researchers. Literature suggests that after disinvestment, improvement in operating and financial performance has been observed in many countries. In India, mixed results have been obtained in the case of various industries which have undergone disinvestment. Gowland & Aiken (2003) examined the performance measurement and accountability factors and the related changes to accounting systems after the privatization of organizations. The outcome has been determined by reviewing prior research and by undertaking a survey of organizations privatized in Australia between 1990 and 1998. Although the government's primary motivation might have been the reduction of government debt overall, changes in performance indicators, accountability factors and information systems suggest that efficiency remains an ongoing goal of the new management arrangements. The article concludes that there have been changes in performance measurement and accountability and accounting information systems. Megginson, et.al. (1994) developed a proxy variable methodology to test whether a significant operational and financial performance changes exist between pre and post privatization period of divested firms. They compare both pre and post privatization 3-year average performance ratios for 61 firms in 18 countries over the period 1961-1989. The finding indicates significant increases in output, operating efficiency, profitability, capital investment spending and dividend payments are found along with significant decreases in leverage. The changes in employment after privatization are found to be insignificant.

Boubakri et.al (1998) examined post-privatization financial and operating performance of 79 companies in 21 developing countries and 32 industries between 1980-1992.The study concluded that there are economically and statistically significant post-privatization increases in output (real sales), operating efficiency, profitability, capital investment spending, dividend payments, and employment as well as significant decreases in leverage. D' Souza & Megginson (1999) compared the pre- and post–privatization financial and operating performance of 85 companies in 28 countries and 21 industries that were privatized through public share offerings for the period between 1991 and 1996. Reported that privatization has led to significant increases in profitability, output, operating efficiency and dividend payments as well as a significant decrease in leverage ratios. Porta & Silanes (1999) addressed significant improvements in output and sales efficiency of 218 Mexican privatized firms through June 1992, and found that the gap in performance between privatized firms and privately controlled firms narrows. They also found a significant decrease in the level of employment. Harper (2001) examined privatization in the Czech Republic and concluded that this process resulted in improved profitability, higher efficiency and lower employment levels in divested firms in the second wave of privatization but caused the opposite results in the first divestment round.

Torero (2003) analyzed the impact of privatization through a detailed statistical and econometric analysis of first difference (the difference between pre- and post-privatization performance), and second difference (change in performance of privatized firms relative to the change in performance of SOEs) of several indicators on profitability, operating efficiency, employment, leverage and convergence. The results indicate that privately owned firms are more efficient and profitable than state-owned firms. Omran (2004) examined the performance of 54 newly privatized Egyptian firms in relation to the State Owned Enterprises (SOE). The analysis show that privatized firms do not exhibit significant improvement in their performance changes relative to SOEs. Muslumov (2005) analyzed the impact of financial and operating performance of privatized companies in the Turkish cement industry. Document that privatization in cement industry results in significant performance deterioration. Banaluddin (2007) evaluated the impact of privatization on operating and financial performance of the privatized firms in Malaysia. The results showed that the performance proxies, Return on Sale, Return on Assets and Return on Equity deteriorated and real sales and net profit of the firms improved upon privatization.

In India, a number of researchers have analyzed the effect of disinvestment after 1991. The comparison of the pre- and post-disinvestment financial and operational performance of 15 PSEs of India that experienced partial disinvestment during the period of 1991-92 to 2002 was done by Ravinder & Rupinder (2007). The empirical evidence supported the positive effects of privatization on PSEs' performance. These privatized units have significantly improved the level of profitability, sales, operational efficiency,

earnings per share and dividend payments after disinvestment. Singh & Paliwal (2010) examined the impact of disinvestment which took place during 1985-86 to 2004-05 on the performance of selected units of competitive and monopoly units of Indian PSEs. The grouping of enterprises has been done on the basis of their contribution to total industrial production/service. Operating performance of competitive firms based on sales has shown decline in the profitability during the post-disinvestment period. On the other hand, monopoly firms have been efficient in generating profit and controlling their expenditures. The study documented that the performance of monopoly firms show an improvement during the after-disinvestment period when compared to competitive firms.

Gupta & Seema (2011) assessed the financial performance of disinvested Central Public Sector Enterprises in India on the basis of several dimensions on pre and post disinvestment bases over the life span of more than two decades (i.e. 1986-87 to 2009-10). Financial performance has been measured on the basis of select profitability, efficiency, liquidity, leverage and productivity ratios. The findings suggest that partial or small amount of disinvestment has not yielded desired results in majority of dimensions. It may be virtually due to variety of problems faced by PSEs even after disinvestment, such as high cost and noncompetitive industrial structure, operational inefficiency due to high governmental interference and environment restrictions. They concluded that government's intervention in the functioning of the firm and managerial decision-making should be a matter of last resort.

Koner & Jaydeb (2014) examined the behaviour of different measures of liquidity given by different ratios of the divested central public sector enterprises in India. For this purpose they take the financial data of ten divested central public sector enterprises namely BEML, BEL, SAIL, BHEL, ITI, SCI, ONGC, IOCL, GAIL and CONCOR during the period 2000- 2010.They consider two different measures of short term liquidity such as current ratio (CR), Debt – Equity ratio (D/E). They obtained mixed result for the change in D/E ratio and short term liquidity ratio over the period. Naib (2003) examined the impact of the partial divestiture of disinvested enterprises in India. The results indicate that in case of partial divestiture, where divested equity is thinly spread with the majority shareholding still the government, there has been no improvement in terms of profitability and operational efficiency. Chundawat & Shurveer (2005) compared the pre- and post disinvestment financial and operating performance of the selected disinvested Central Public Sector Enterprises (CPSEs) of Indian Manufacturing sector based on cognate groups after disinvestment. Joshi (2002) analyzed the impact of change in the ownership on financial performance of public sector enterprises in general and Bharat Heavy Electricals Limited in particular. In this study, disinvestment of the government shareholding was taken as an event and pre – disinvestment mean value of various financial parameters for financial years (1986-91) is compared with post disinvestment mean value of financial years (1992-2000). Result shows that disinvestment improves the

profitability and liquidity position of BHEL while it has affected the dividend payout negatively.

3. Research methodology

Disinvestment is widely perceived as a tool in the hands of the Government to improve the functioning and profitability of public sector enterprises and also raise funds to mitigate its fiscal deficits. In India, Petroleum sector and Minerals & Metals sector are the two sectors in which a large number of companies were disinvested in the past. The objectives of this research are (1) To study the financial performance of petroleum and minerals & metal industries before and after disinvestment. (2) To study the operating performance of petroleum and minerals & metal industries before and after disinvestment. The public sector companies in Petroleum and Metals & Minerals sector which have undergone disinvestment between the time period 1992-93 and 2007-08 were chosen for the study. There are ten companies in Petroleum sector and four companies in Metals & Minerals sector which have undergone disinvestment during this period. The companies selected for the study are as follows: (a) Petroleum Sector - Oil and Natural Gas Corporation, Madras Refineries Ltd. ,Indian Oil Corporation Ltd, Hindustan Petroleum Corporation Ltd., Gas Authority of India Ltd., Cochin Refinery Ltd., Bongaingaon Refinery and Petro Chemical Ltd, and Bharat Petroleum Corporation Ltd. (b) Metals & Minerals sector ; National Mineral Development Co, National Aluminum Co. Ltd. Hindustan Zinc Ltd. and Hindustan Copper Ltd. : The time period selected is from 1992-93 to 2007-2008. The criterion for selecting the sample period is to avail the data for the five years after the year of disinvestment and five years before the disinvestment. The data is taken from CMIE database.

Figure 1: Variables chosen for this study

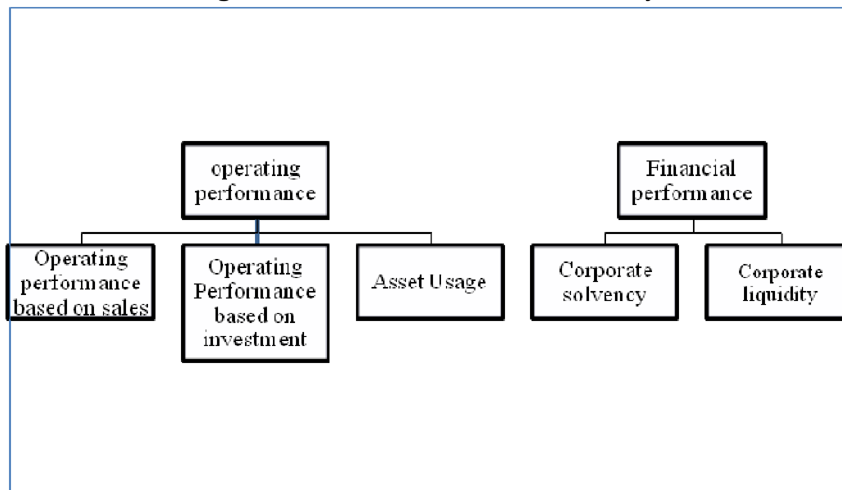

Table 2: Variables and measurement

Variables	Measured using
Corporate solvency	D/E Ratio Proprietary Ratio Solvency Ratio Fixed Asset to Net worth Interest coverage ratio
Corporate Liquidity	Current ratio Quick ratio
Operating Performance based on sales	GP ratio NP ratio Operating Profit Ratio Material Cost/Net sales Manpower Cost/ Net sales
Operating Performance based in investment	ROA ROCE
Asset Usage	Inventory turnover ratio Inventory conversion ratio Debtors turnover ratio Fixed Asset turnover ratio Working capital turnover ratio capital turnover ratio.

Paired sample t-test is used for analysis. It is a statistical technique that is used to compare two population means in the case of two samples that are correlated. Paired sample t-test is used in 'before-after' studies, or when the samples are the matched pairs, or when it is a case-control study. The limitation of the study is that business cycles, economic policies or other macroeconomic developments affect most companies' performance in any economy. These disturbances can lead to opposite or unexplained relationships and can distort the final results.

4. Analysis

Paired sample t test is used in a situation where

- The sample sizes are equal, i.e. , n1=n2=n , say and
- The sample observations(x1,x2,….,xn) and (y1,y2,…yn) are not completely independent but they are dependent in pairs i.e., the pairs of observations(x1,y1),(x2,y2),….(xn,yn) correspond to the 1st,2nd,…nth unit respectively.

  Suppose the sample observations(x1,x2,….,xn) are observations before the occurrence of an event and observations (y1,y2,…yn) are observations after the occurrence of an event, i.e. the two sets of observations are not completely

independent but they are dependent in pairs i.e., the pairs of observations(x1,y1),(x2,y2),….(xn,yn) correspond to the 1st,2nd,…nth unit respectively.

Let di = xi-yi (i=1,2,…n) denotes the difference in observation for the ith unit.
Under the null hypothesis that the increment in observations (y1, y2,…yn),are just by chance due to the occurrence of the event, i.e. H0= μx=μy, the test statistics is

$$t = \frac{\bar{d}}{s/\sqrt{n}} = \frac{\bar{d}}{s2/\sqrt{n}} \sim t_n - 1$$

Where d= x-y, $\bar{d} = \frac{1}{n}\sum d$ and $s^2 = \frac{1}{n-1}\sum (d-\bar{d})^2 = \frac{1}{n-1}\left[\sum d^2 - \frac{(\sum d)2}{n}\right]$

Table 3: Paired samples statistics for Petroleum Sector

	Paired Differences					T	Df	Sig. (2-tailed)
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Corporate solvency(PRE - POST)	-5.59237	6.7986	2.14991	-10.455	-.72894	-2.601	9	.029*
Corporate liquidity(PRE – POST)	.02631	.20392	.06448	-.11956	.17219	.408	9	.693
Operating performance based on sales(PRE – POST)	-.00661	.01242	.00393	-.01549	.00227	-1.683	9	.127
Operating performance based on investment (PRE – POST)	-4.88032	12.59	3.98240	-13.889	4.12849	-1.225	9	.251
Asset usage(PRE – POST)	-4.36548	4.3448	1.37395	-7.47355	-1.2574	-3.177	9	.011*

Source: Authors' compilation using SPSS

Table 3 shows the significance (2 tailed) value for the paired variables. Corporate solvency (pre-post) and asset usage (pre-post) show significant difference between the post disinvestment period and the pre disinvestment period as their respective significance (2 tailed) values are below .05. The table shows that only two variables i.e.

corporate solvency and asset usage show an increase in their means in the post disinvestment period, whereas all other variables declined in their mean value during post disinvestment period ,compared to the pre disinvestment period.

Table 4: Paired samples statistics for Minerals and Metal sector

	Paired Differences					T	Df	Sig. (2-tailed)
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Corporate solvency(PRE -POST)	-.54287	.09141	.04571	-.68833	-.39742	-11.877	3	.001*
Corporate liquidity(PRE – POST)	.06809	.34323	.17161	-.47806	.61424	.397	3	.718
Operating performance based on sales(PRE – POST)	.01425	.01537	.00768	-.01020	.03870	1.855	3	.161
Operating performance based on investment (PRE – POST)	.05868	.04512	.02256	-.01312	.13049	2.601	3	.080
Asset usage(PRE – POST)	-.31427	.48320	.24160	-1.08315	.45461	-1.301	3	.284

Source: Authors' compilation using SPSS

From table 4 it is evident that only Corporate solvency shows significant difference between the pre disinvestment period and post disinvestment period as the significance (2 tailed) value is .001 i.e. significant at 1% level. All other variables do not show significant difference between pre disinvestment period and the post disinvestment period.

Talking about the financial performance in terms of corporate solvency, it has been found that there is a significant improvement in the mean score of solvency ratios of disinvested firms in petroleum sector during the post disinvestment period on an average. The change is significant at 5 percent level of significance. In the case of Minerals and metal sector, the improvement in corporate solvency is significant at 1 percent level of significance. The analysis of corporate liquidity of the Petroleum sector and Minerals and Metal sector reveal that the managements' efficiency in managing liquid asset has declined in the post-disinvestment period, as the mean score of corporate liquidity declined in both the sectors, as compared to the post-disinvestment period. But the change is not significant.

The analysis of operating performance based on sales of Petroleum sector revealed that there is an increase in the mean value during the post disinvestment period, but it is insignificant. In the case of Minerals and Metal sector, sales has shown decline in the mean scores during the post-disinvestment period. However the change is not significant. Analysis of the operating performance based on investment of the Petroleum sector reveals that there is an increase in the mean scores of return on total assets and return on net capital employed ratios in the post-disinvestment period as compared to the pre-disinvestment period. . But the change is not significant. The examination of the operating performance based on investment reveals that the units engaged in Minerals & Metals failed in the efficient utilization of their resources. However the change is not significant. The mean values of asset usage of Petroleum sector and Minerals and Metal sector have shown increase in the post disinvestment period. But it is significant only in the case of Petroleum sector, while insignificant in the case of Minerals and Metal sector.

Conclusion

Ever since independence PSUs are the main pillars of the Indian economy, which includes central, state and local bodies. But the performance of PSUs was poor over the years due to several reasons which resulted in monetary losses, over capitalization, wrong policies, faulty control and inefficient management. The disinvestment and privatization policy that the government adopted was closely related to efficient channelization and utilization of resources, but the progress often was not that satisfactory. In the international scenario, the studies on the impact of disinvestment on the financial and operating performance of the companies have suggested that the performance tend to improve after disinvestment and the results were almost consistent. But in Indian scenario, previous research findings gave mixed results on the impact of disinvestment on the performance of the firms, depending upon the sectors which have undergone disinvestment. In this research, it is evident that the companies belonging to both Petroleum sector and Metals & Minerals sector have shown improvement in their corporate solvency after disinvestment. It indicates the improved financial strength of the firms and their ability to meet the long term debt obligations. The improvement shown in asset usage by petroleum sector companies indicates that the utilization of resources has improved as a result of change in ownership in the post-disinvestment period as compared to the pre-disinvestment period.

The results also reveal that disinvestment has positive effect on the solvency levels of the firms in petroleum and Metals and Minerals sector companies. Improved asset usage in petroleum sector companies indicates efficient working capital management which in long run can result in increased profitability.

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