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EDITORIAL

Dear Friends,

It is a pleasure for me to interact with all of you through this editorial of our journal. I wish you all a very happy and prosperous new year.

This is the sixth volume, being published annually since its first publication in March, 1996 and perhaps this volume is the last one in the tenure of my service where all my colleagues and other members of the editorial board gave me solemn responsibility as Editor-in-Chief since its inception. I don't know whether my service in the last five terms is upto your satisfaction or not but I am sure my young colleagues will take the big challenge to establish our credentials and leave no stone unturned for further improving the standard and quality of our journal. I solicit all round help and continued co-operation from all corners in future also as in the past.

I express my sincere gratitude to the Contributors, learned Reviewers, the Readers and all my Colleagues in the Editorial Board for their unstinted continuous help and co-operation.

To encourage research and learning activities publication of this journal is sponsored by the University for which the members of the Editorial Board are grateful to the Authority of this University. We are delighted that within a short span of six years this Research Journal has received a wide appreciation from academic stalwarts and professionals. There is no room for complacency. It should be our future endeavour to invite more involvement of practitioners and professionals to bring into focus their day-to-day experiences in different areas of specialisation in Commerce, Economics, Finance, Production, Marketing and the like. Blending of academic thinking with professional outlook will give us an ideal research orientation through this Vidyasagar University Journal of Commerce.

This volume contains seven articles covering wide range of multidisciplinary areas of academic and professional importance. Usually, our practice is to publish one or two articles in the Students' Section and the rest are placed in the General Section but this year none of the paper-writers mentioned any intention as to such placement and the learned Reviewers too did not comment as such. So, all the selected articles are placed in the General Section. May I request our contributors to mention the Section specifically for which the paper concerned is opted for publication ? Of course based on Reviewers' recommendation, the decision of the Editorial Board will be treated as final. All the papers are

subject to rigorous blind review by renowned experts in the relevant areas except those from the invitees. The first three research articles in this volume have been contributed by the experts on request. Our special thanks and sincere gratitude go to them who in the midst of their busy schedule have ornamented our Journal.

The papers on "Value at Risk : An Empirical Multicurrency Model" contributed by Prof. T.P. Ghosh, "State Electricity Board in West Bengal : The Unfinished Agenda for Reforms" by Prof. S.K. Chaudhuri, " A Balance Sheet Approach to Corporate Financial Reporting Theory : An Overview" by Prof. A.K. Basu are not merely compilation of academic information but all of them are based on empirical study and research. The other papers written by Prof. Tanmoy Dasgupta (jointly with Sri Anindya Dutta), Prof. Samir Ghosh, Prof. Mangalendu Narayan Roy and Prof. Tarun Kanti Ghosh are also outstanding and most praiseworthy. They cover topics on Marketing, Accounting and Management . My hearty congratulations to all of them.

I believe, this Journal will be of very much useful not only to the students, teachers and researchers in Commerce, Economics and Management in any academic Institution but also to professionals and policy makers in many organisations. To give impetus, the journal has been priced simply on break-even basis with alluring subsidy to the students community.

Please feel free to express your valued opinion on the quality and contents of our journal and to forward your comments and suggestions to our Executive Editor. We shall be highly encouraged by such comments.

March, 2001

Prof. D.P. Pande
Editor-in-Chief

VIDYASAGAR UNIVERSITY JOURNAL OF COMMERCE

LIST OF ARTICLES FOR 6TH VOLUME (March 2001)

VALUE AT RISK
AN EMPIRICAL MULTI - CURRENCY MODEL

T.P. Ghosh *

At close of business each day tell me what the market risks are across all businesses and locations — Dennis Weatherstone, former Chairman of J.P. Morgan.

Riskmetrics isn't a substitute for good management, experience and judgement. It's a toolbox, not a black box. — Till Guldimann, former Head, Global Research of J.P. Morgan.

Why VAR ?

VAR measures the worst expected loss over a given time interval under normal market conditions at a given confidence level. It is a technique for measuring market risk. Equity, bond, currency, interest rates and derivative instruments like options and futures are subject to high price volatility. An organisation having open interest in these financial instruments may like to assess the amount of loss it would suffer in case of worst price movements within normal market condition.

An importer has to pay import bill in USD after thirty days. The essential and conservative risk management approach is to take a forward cover. Forward rate may be ruling at a very high level which is beyond the forecast value of USD after 30 days. In case the company has a tool to forecast USD after thirty days, then it can compare the today's spot rate plus forward premium with the 30-day forecast rate and take decision whether to buy forward or not. In case of underestimation of 30-day USD rate, the company will lose. Accordingly, if the maximum possible loss can be indicated, the corporate management can take a calculated risk.

If a financial institution desires to keep open position in any currency expecting fall in the exchange rate in the next day, the inherent risk is that exchange rate may in fact rise. Accordingly, the financial institu-

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tions will attempt to know as a part of internal control measure what should be the maximum loss arising out of the open interest. In case the maximum possible loss is beyond the risk bearing capability of the financial institution, it may attempt to cover its exposure.

Of course, the regulatory bodies look into VAR as a measure for determination of capital adequacy of financial institutions. VAR is believed to be a better indicator capital adequacy in the context of market risk than a pre-determined ratio without having any connection with market fluctuations.

During the mid nineties VAR model emerged as a popular market risk assessment model. In 1994, J P Morgan introduced Riskmetrics™ which in fact created interest and trust on this approach. The Bank of International Settlements has illustrated how financial institutions can use VAR concept to disclose market risks. The International Swap Dealers Association (ISDA) has also endorsed this approach.

Presently, different approaches adopted by different organisations carry different names (see Exhibit 1).

Exhibit 1
Various Names of VAR

JP Morgan	DEAR	Daily Earning At Risk
Citicorp	PLA	Potential Loss Amount
Bank of America	EAR	Earnings At Risk
Bankers' Trust	DPV	Daily Price Volatility
ING	IAS	Income At Stake
First Chicago	VAR	Value At Risk
Several Institutions	VAR	Value At Risk
Some Institutions	DAR	Dollars At Risk

Source : Srinivaslu, Euromoney, 2001

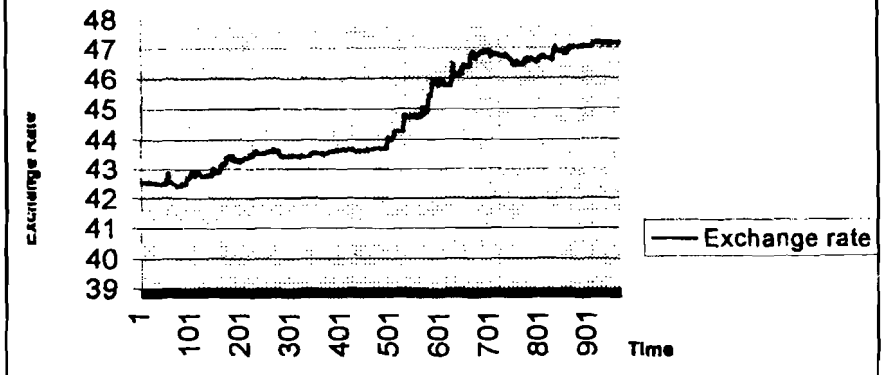
In this article an attempt has been made to develop an appropriate VAR model for USD/INR exchange rate. Also the VAR concept has been extended to nine other currencies, namely, GBP, EURO, JPY, RUB, CHY, MYR, THB, AUD and SGD to establish reliability of the model in the context of INR. Finally, a multi-currency VAR model has been established. This model will help the organisations which have multi-currency exposure for managing risk.

USD — INR VAR Model

1. DEAR : Generally, historical simulation approach is used for DEAR analysis. The rate of price change is assumed to be normal with mean μ and standard deviation σ . However, μ and σ parameters are dynamic and sensitive to market changes. Accordingly, moving average of price change is used for μ_t and standard deviations of the same series can be used as σ_t, for μ_t = mean price change at time t, and σ_t = standard deviation of the price change.

Shown below in Figure 1 is USD/INR exchange rate during 4/1/1999-26/8/2001 (966 exchange rates).

Figure 1 :USD INR Exchange Rate Volatility



To capture price change one approach is to take price relatives :

$$\text{Price change } [\Delta P] = \frac{ER_{t+1}}{ER_t}$$

ER_t = Exchange rate at time t, say on 4/1/1999;
ER_{t+1} = Exchange rate at time t, say on 5/1/1999;
Given ER_t = 42.521 and ER_{t+1} = 42.565, ΔP = 1.0010.
From 966 exchange rates 965 price relatives are generated.

Applying 50-day moving average method on a data base of 966 - day exchange rate (Adoption of appropriate moving average period is also crucial for the success of the model. It has been tested that moving averages in the range of 15-30 days fail to represent base for rate prediction. On the other hand, a moving average more than 50-day period is carrying too much of historical perspective. A weighted moving average does not pro-

duce better result than the methodology adopted in this article.) We get 915μ and 915σ . The first moving average is in fact generated against ER_{51}. Thus 916 moving averages are generated using 965 price relatives.

μ_1 = AVERAGE ($\Delta P_1 : \Delta P_{50}$) = 0.99997,
μ_2= AVERAGE ($\Delta P_2 : \Delta P_{51}$) = 0.99997,
....
μ_{916} = AVERAGE ($\Delta P_{916} : \Delta P_{965}$) = 1.0000
In fact, μ_{max} = 1.00067, μ_{min} = 0.99978.
Similarly, from 965 price relatives
σ_1 = STDEV ($\Delta P_1 : \Delta P_{50}$) = 0.000511,
σ_2 = STDEV($\Delta P_2 : \Delta P_{51}$) = 0.000515,
... ...
σ_{916} = STDEV ($\Delta P_{916} : \Delta P_{965}$) = 0.000672,
σ_{max} = 0.00248, σ_{min} = 0.00035.

Applying normal distribution assumptions (see Figure 2 which shows that price relatives are approximately normal) various confidence levels are :

Confidence level	Nos. of σ
99.5%	2.5758
97.5%	1.9600
95.0%	1.6449
92.5%	1.4395
90.0%	1.2816

Exchange rate of the next day can be estimated using μ_t , and σ_t for a given confidence level :

ER_{f52} = Forecast exchange rate for 52nd day, i.e. 24/2/1999 at 99.5% confidence level = (μ_1 + 2.5758 σ_1) *ER_{51}= Rs.42.5019.
ER_{f52} at 97.5%, 95%,92.5% and 90% confidence levels are Rs. 42.4880, Rs. 42.4812, Rs. 42.4767and Rs. 42.4733 respectively.

Higher the confidence level higher is the estimated exchange rate and lower is the difference between predicted rate and actual rate of the next day.

$DEAR_{1(99.5)}$ = Expected loss for holding open position of USD1 for 1 day = ER_{f52} — ER_{f51} = Forecast exchange rate for 52nd day — Exchange rate of 51st day = Rs.(42.5014 - 42.447) = Re.0544. This means forecast exchange rate at 99.5% confidence level is Rs. 42.5014 and maximum possible loss for 1 USD outstanding position is Re.0.0544.

Similarly, $DEAR_{1(97.5)}$, $DEAR_{1(95.0)}$, $DEAR_{1(92.5)}$ and $DEAR_{1(90.0)}$ are Re.0.0410, Re.0.0342, Re.0.0297 and Re.0.0263 respectively . Thus there are 4580 DEAR for five different confidence levels across 916 days. Shown below in Tables IA and IB are computations of USD DEAR at different confidence levels. In the first step, exchange rate of the next day is predicted for the period 13 August to 25 August, 2001 using one day lag price.

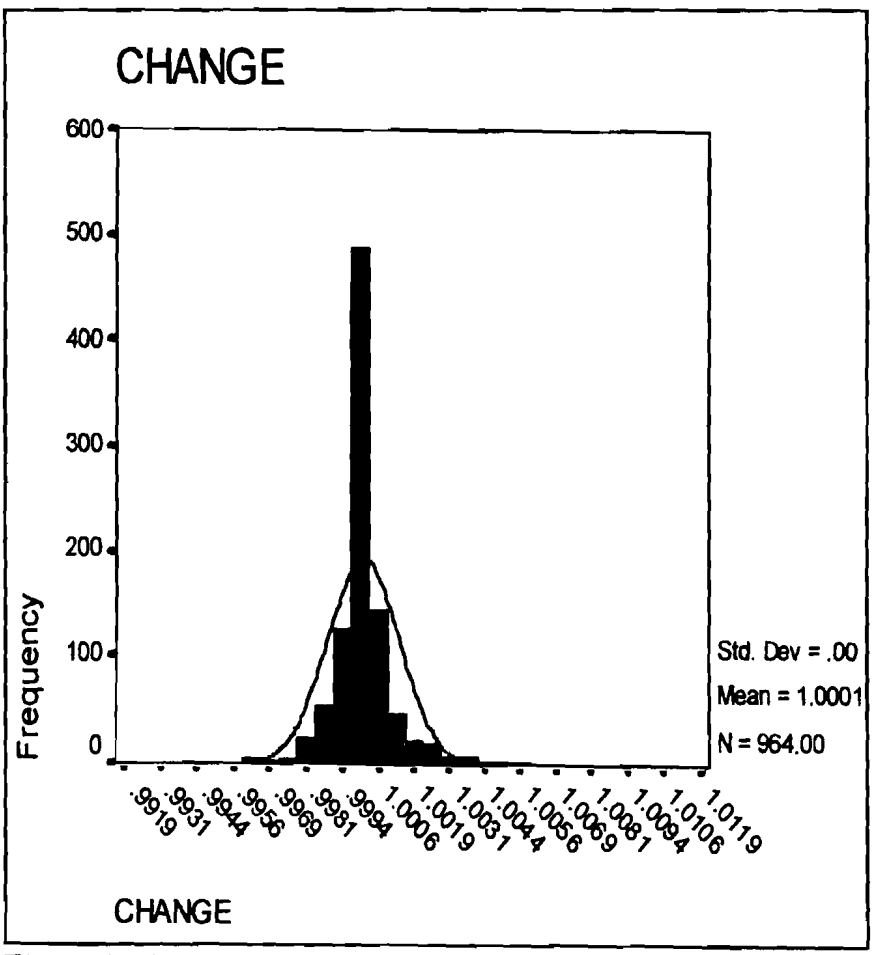


Figure 2 Distribution Pattern of Exchange Rate Change

Table 1A : Exchange Rate Prediction								
			Predicted exchange rate for next day at confidence level of					Average price on the date of prediction
1	2	3	4	5	6	7	8	9
Date	MA(50)	SD(50)	99%	97.50%	95%	92.50%	90%	
8.13.2001	1.0001	0.0007	47.2577	47.2374	47.2270	47.2202	47.2150	47.1700
8.14.2001	1.0001	0.0007	47.2577	47.2374	47.2270	47.2202	47.2150	47.1700
8.15.2001	1.0000	0.0007	47.2470	47.2267	47.2163	47.2095	47.2043	47.1600
8.16.2001	1.0000	0.0007	47.2467	47.2264	47.2160	47.2093	47.2041	47.1600
8.17.2001	1.0001	0.0007	47.2455	47.2257	47.2156	47.2090	47.2040	47.1600
8.18.2001	1.0000	0.0007	47.2538	47.2343	47.2243	47.2178	47.2128	47.1700
8.19.2001	1.0000	0.0007	47.2525	47.2332	47.2233	47.2168	47.2119	47.1700
8.20.2001	1.0000	0.0007	47.2525	47.2332	47.2233	47.2168	47.2119	47.1700
8.21.2001	1.0000	0.0007	47.2349	47.2154	47.2055	47.1990	47.1941	47.1524
8.22.2001	1.0000	0.0006	47.2549	47.2370	47.2279	47.2219	47.2173	47.1800
8.23.2001	1.0000	0.0006	47.2550	47.2372	47.2280	47.2220	47.2174	47.1800
8.24.2001	1.0000	0.0007	47.1879	47.1690	47.1594	47.1531	47.1483	47.1100
8.25.2001	1.0000	0.0007	47.2516	47.2320	47.2220	47.2155	47.2105	47.1700

Notes : MA (50) = 50 - day Moving average
SD(50) = SD on the basis 50-day change in exchange rate
99.5% = [MA(50) + 2.5758*SD (50)] * Column 9
97.5% = [MA(50) + 1.9600*SD (50)] * Column 9
95.0% = [MA(50) + 1.6449*SD (50)] * Column 9
92.5% = [MA(50) + 1.4395*SD (50)] * Column 9
90.0% = [MA(50) + 1.2816*SD (50)] * Column 9

It is understood from Table 1A that a higher confidence level will generate lower degree of error but it also makes overestimation of loss. Higher the degree of overestimation, higher is the quantum of predicted loss and accordingly, the management will avoid to take a risk. So the model will be of no use to the organisation. Apart from reducing the cases of underestimation of loss as shown in Table 2A, the objective of DEAR model is to minimise the degree of overestimation.

In the next step, DEAR is computed taking the difference between Predicted Price at different confidence level and One Day Lag Price. Naturally, DEAR for a lower confidence level is lower than the DEAR for a higher confidence level.

Table 1B : Computation of DEAR

	DEAR at Various Confidence Levels				
Date	99%	97.50%	95%	92.50%	90%
8.13.2001	0.0877	0.0674	0.0570	0.0502	0.0450
8.14.2001	0.0877	0.0674	0.0570	0.0502	0.0450
8.15.2001	0.0870	0.0667	0.0563	0.0495	0.0443
8.16.2001	0.0867	0.0664	0.0560	0.0493	0.0441
8.17.2001	0.0855	0.0657	0.0556	0.0490	0.0440
8.18.2001	0.0838	0.0643	0.0543	0.0478	0.0428
8.19.2001	0.0825	0.0632	0.0533	0.0468	0.0419
8.20.2001	0.0825	0.0632	0.0533	0.0468	0.0419
8.212001	0.0825	0.0630	0.0531	0.0466	0.0417
8.22.2001	0.0749	0.0570	0.0479	0.0419	0.0373
8.23.2001	0.0750	0.0572	0.0480	0.0420	0.0374
8.24.2001	0.0779	0.0590	0.0494	0.0431	0.0383
8.25.2001	0.0816	0.0620	0.0520	0.0455	0.0405

II. Backtesting : How far the predicted price is not underestimated is crucial for the acceptability of the model. For the purpose of backtesting actual exchange rate is compared with the predicted exchange rate. So long the differences are positive there is no underestimation of loss. This model intends to achieve zero failure but it will generally encounter a higher/lower probability of failure than statistically expected because of breakdown of normality assumption .

$DE_{1(.995)}$= Error in DEAR estimation = $DEAR_1$ — (ER_{f52}— ER_{52}) = Estimated Loss — Actual Loss = DEAR estimated on the previous day — Rate difference over the day = 0.0064. Similarly, $DE_{1(.975)}$, $DE_{1(.950)}$,$DE_{1(.925)}$ and $DE_{1(.900)}$ are - 0.0070, - 0.0138, - 0.0183 and - 0.0217 respectively. Lower the confidence level,

higher is the probability of underestimation of loss and vice versa. As backtesting against DEAR916 is not possible for want of exchange rate of the next day, for each confidence limit 915 DEs are generated and total USD/INR DEs are 4575.

The concept of backtesting is illustrated in Tables 2A and 2B using data of Tables 1A and 1B.

Table 2A : Over-or Under-estimation of Exchange Rate

Date	99%	97.50%	95%	92.50%	90%	Mean Exchange Rate of the next day
8.13.2001	0.0877	0.0674	0.0570	0.0502	0.0450	47.170
8.14.2001	0.0977	0.0774	0.0670	0.0602	0.0550	47.160
8.15.2001	0.0870	0.0667	0.0563	0.0495	0.0443	47.160
8.16.2001	0.0867	0.0664	0.0560	0.0493	0.0441	47.160
8.17.2001	0.0755	0.0557	0.0456	0.0390	0.0340	47.170
8.18.2001	0.0838	0.0643	0.0543	0.0478	0.0428	47.170
8.19.2001	0.0825	0.0632	0.0533	0.0468	0.0419	47.170
8.20.2001	0.1001	0.0808	0.0709	0.0644	0.0595	47.152
8.21.2001	0.0549	0.0354	0.0255	0.0190	0.0141	47.180
8.22.2001	0.0749	0.0570	0.0479	0.0419	0.0373	47.180
8.23.2001	0.1450	0.1272	0.1180	0.1120	0.1074	47.110
8.24.2001	0.0179	**-0.0010**	**-0.0106**	**-0.0169**	**-0.0217**	47.170
8.25.2001	0.0816	0.0620	0.0520	0.0455	0.0405	47.170

Note : Negative error means estimated exchange rate is lower than the actual exchange rate.

During the display period on 24 August underestimation took place across 97.5%- 90% confidence levels. A DEAR model demands a balancing between minimisation of underestimation of exchange rate cases and overestimation . As overestimation of loss may enforce higher degree of internal control which is also not desirable. Open interest maintained by a financial institution may create favourable impact on its profitability in case USD remains stable or depreciates. If a manager overestimates the upside movement of USD, then the financial institution would prefer to reduce exposure.

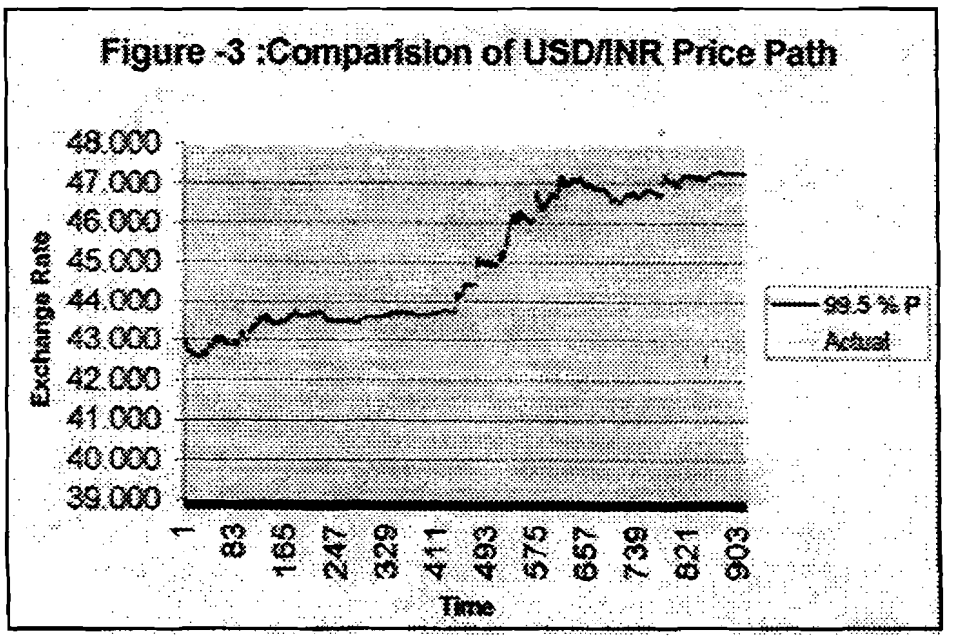
TAble 2B Backtesting of USD/INR DEAR					
Confidence Level	99%	97.50%	95%	92.50%	90%
No. of samples	915	915	915	915	915
No. of cases where ER is underestimated	22	37	51	61	70
% error	2.40%	4.04%	5.57%	6.67%	7.65%

At the higher side of the confidence level, degree of error is higher than expected. This implies that a higher percentage of price shock has been envisaged between USD/INR during the study period.

Shown in figure 3 are the predicted and actual exchange rates at 99.5% level. The DEAR concept demands that the actual price path should remain below the predicted price path for avoiding under-estimation of loss. At the same time overestimation of loss means increased DEAR.

III. VAR : DEAR is one day VAR. DEAR explains how much maximum loss an organisation would suffer in case worst price possibility occurs. When the loss possibility is predicted over n days, it becomes n- day VAR. $VAR_{t(n)}$, Value at Risk for n day at time t at 99.5% confidence level , $DEAR_t$ X_{vn}

$VAR_{1(10)(.995)} = 0.0544 \times (10)^2 = 0.1719$. This means estimated rupee depre-



ciation over a 10-day period with same level of DEAR is 0.1719 at 99.5% confidence limit. Similarly, $VAR_{1(10)(.975)}$, $VAR_{1(10)(.95)}$, $VAR_{1(10)(.925)}$ and $VAR_{1(10)(.90)}$ are 0.1297, 0.1081, 0.0940 and 0.0832 respectively. Thus 916 VAR s are generated for each confidence limit aggregating to 4580 VARs for the sample period.

The basis of n - day VAR is that worst situation will continue for n-days. It is cumulative loss over a period of n days. Financial institutions generally compute 10 - day VAR or 15 -day VAR. This explains what is expected loss if the open position is maintained over n day period and the volatility remains the same.

Likewise DEAR model, backtesting is carried on the basis of realised exchange rate on t+n day :
$VE_{1(.995)} = VAR_{1(.995)} - (ER_{61} - ER_{51})$, i.e. value at risk as estimated n day before can be tested on expiry of 10 day by comparison of actual exchange rate of 10th day with exchange rate = 0.0919. Similarly, $VE_{1(.975)}$, $VE_{1(.95)}$, $VE_{1(.925)}$ and $VE_{1(.90)}$ are 0.0497, 0.0281, 0.0140 and 0.0032 respectively. For 10 - day VAR model with 916 VARs, 906 VEs are available.

Given in Table 3A is the result of 10 day USD/INR VAR. Table 3A explains the maximum INR depreciation over a 10-day period in a normal market conditions.

Table 3A : 10- dayVAR at different confidence levels

Date	99.50%	97.50%	95%	92.50%	90%
8.17.2001	0.2573	0.1981	0.1678	0.1480	0.1328
8.18.2001	0.2605	0.1996	0.1684	0.1481	0.1325
8.19.2001	0.2815	0.2168	0.1836	0.1621	0.1455
8.20.2001	0.2814	0.2167	0.1836	0.1620	0.1454
8.212001	0.2774	0.2130	0.1801	0.1587	0.1422
8.22.2001	0.2774	0.2130	0.1801	0.1587	0.1422
8.23.2001	0.2774	0.2130	0.1801	0.1587	0.1422
8.24.2001	0.2774	0.2130	0.1801	0.1587	0.1422
8.25.2001	0.2750	0.2108	0.1779	0.1565	0.1400
8.26.2001	0.2742	0.2100	0.1772	0.1558	0.1393

Note : On 7 August which is 10 working days preceding 17 August VAR is computed . So VAR for 17 August is determined on the basis of DEAR determined on 7 August but actually compared on 17 August after exchange rate is realised .

10-day VAR prediction should also be backtested using actual exchange rate during 13 August to 26 August. From Table 3B it is observed that at 10-day VAR estimation there is almost similar degree of underestimation across various confidence levels. Accordingly, it is possible to use same confidence level for DEAR or 1 - day VAR and 10-day VAR.

Table 3B : Difference between VAR and actual loss

Date	99.50%	97.50%	95%	92.50%	90%
8.17.2001	0.2573	0.1981	0.1678	0.1480	0.1328
8.18.2001	0.2005	0.1396	0.1084	0.0881	0.0725
8.19.2001	0.3015	0.2368	0.2036	0.1821	0.1655
8.20.2001	0.2914	0.2267	0.1936	0.1720	0.1554
8.212001	0.2950	0.2306	0.1977	0.1763	0.1598
8.22.2001	0.2674	0.2030	0.1701	0.1487	0.1322
8.23.2001	0.2674	0.2030	0.1701	0.1487	0.1322
8.24.2001	0.3374	0.2730	0.2401	0.2187	0.2022
8.25.2001	0.2650	0.2008	0.1679	0.1465	0.1300
8.26.2001	0.2642	0.2000	0.1672	0.1458	0.1293

From 906 VAR estimation across the sample period Var failure % for different confidence levels are as shown in Table 3C.

Table 3C : Underestimation % of USD-INR VAR

	DEAR	**VAR**
Confidence Level	% of Underestimation	% of Underestimation
99.5%	2.40	1.66
97.5%	4.04	4.53
95.0%	5.57	6.40
92.5%	6.67	7.28
90.0%	7.65	8.94

DEAR in Sample Currencies

Given below in Table 4 are errors of estimation of DEAR in various sample currencies. It appears that in lower degree of confidence limits failure rate in SGD is the highest. At the higher confidence intervals failure rate in MYR is the highest. This model is the most successful with RUB.

Latest volatility in exchange rates based on relative exchange rate changes are USD 0.0006, GBP 0.0036, JPY 0.0056, EURO 0.0046, AUD 0.0069, THB 0.0022, MYR 0.0007, CNY 0.0007, RUB 0.0008 and SGD 0.0033. Although volatility of SGD — INR is moderate, big inter-day changes cause the highest failure of the DEAR estimation.

Table 4 : DEAR Estimation Error

Currency	No. of samples	99.50%	97.50%	95.00%	92.50%	90.00%
USD	915	22	37	51	61	70
	%Error	2.40	4.04	5.57	6.67	7.65
GBP	904	21	37	34	74	96
	%Error	2.30	4.05	3.72	8.10	10.50
JPY	914	17	35	49	67	85
	%Error	1.86	3.83	5.36	7.33	9.30
EURO	914	16	40	62	73	89
	%Error	1.75	4.38	6.78	7.99	9.74
AUD	914	10	29	51	71	90
	%Error	1.09	3.17	5.58	7.77	9.85
THB	914	20	40	55	67	76
	%Error	2.19	4.38	6.02	7.33	8.32
MYR	914	22	34	45	55	61
	%Error	2.41	3.72	4.92	6.02	6.67
CNY	914	19	32	49	58	67
	%Error	2.08	3.50	5.36	6.35	7.33
RUB	914	8	22	32	39	50
	%Error	0.88	2.41	3.50	4.27	5.47
SGD	914	12	34	62	78	104
	%Error	1.31	3.72	6.78	8.53	11.38
All Currency	Average %Error	1.83	3.72	5.36	7.03	8.62
	Max %Error	2.41	4.38	6.78	8.53	11.38
	Min %Error	0.88	2.41	3.50	4.27	5.47

DEAR of Currency Portfolio

The DEAR and VAR concepts can be extended to manage risk of currency portfolio. In fact an organisation may be mostly looking for a composite VAR than single currency VAR. On the basis of ten currencies used in this article an equal value currency portfolio has been formed to study the DEAR estimation error. This means that currency portfolio comprises of 1 unit of all sample currencies. Four currency portfolios are considered for the purpose of analysis :
Portfolio 1 (P) : All ten currencies with 1 unit each ;
Portfolio 2 (P^2) : All ten sample currencies except AUD which has the highest volatility with 1 unit each ;
Portfolio 3 (P^3) : All ten currencies except AUD and JPY which are the top two volatile currencies with 1 unit each ; and
Portfolio (P^4) : All ten currencies except AUD which has the highest volatility and SGD which has the degree of error in DEAR estimation with 1 unit each.

It may be observed from Table 5 that errors of DEAR estimation in P^1 is the highest. If AUD, the highest volatile currency, is removed from the portfolio, the error of estimation is reduced. In P^3 error of estimation has not been further reduced and so there is no need to eliminate JPY for improving predictive ability of the model. P^4also fails to reduce the underestimation of DEAR. Accordingly, it seems $P^2$is the best portfolio from the point of internal control.

Conclusions

DEAR and VAR as internal control techniques of currency portfolio risk management are very effective tool even in their simplest form of modeling. The degree of error in estimation of DEAR is more or less within the statistical limit. Of course, degree of error in 99.5% confidence interval may raise doubt about the creditability of the model. Nonetheless if a model can predict roughly 97% cases against 99.5% confidence level, it may be considered as an effective internal control tool.

It is possible to use regressed standard deviation for estimation of volatility or simulated exchange rate for improving the result*.

Table 5: Error of estimation of currency portfolio DEAR						
	No. of samples	904	904	904	904	904
Confidence limit		99.5%	97.5%	95.0%	92.5%	90.0%
P^1	No. of errors	22	42	63	79	94
	% Error	2.41	4.60	6.89	8.64	10.28
P^2	No. of errors	21	44	58	72	89
	% Error	2.30	4.81	6.35	7.88	9.74
P^3	No. of errors	21	44	58	72	90
	% Error	2.30	4.81	6.35	7.88	9.85
P^4	No. of errors	21	44	58	72	89
	% Error	2.30	4.81	6.35	7.88	9.74

Abbreviations :

DEAR - Daily Earning At Risk/VAR - Value At Risk

Currency Symbols :

Currency	Symbol
Australian Dollar	AUD
British Pound	GKB
Chinese Yuan Renmenbi	CNY
EURO	EUR
Indian Rupee	INR
Japanese Yen	JPY
Malaysian Ringgit	MYR
Russian Ruble	RUB
Singapore Dollar	SGD
Thai Bhat	THB
US Dollar	USD

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*Interested readers may contact the author at tpghosh@imt.ac.in for results of regressed/simulated VAR

STATE ELECTRICITY BOARD IN WEST BENGAL: THE UNFINISHED AGENDA FOR REFORMS

Swapan Kanti Chaudhuri *

Introduction

West Bengal, which faced rampant power cuts throughout the 1970s and 1980s, is currently having enough power. The total generation of power in the state, including the supply from central agencies, is now around 22 million units. In order to augment further power generating capacity from the present level of 6,293 MW, the state government has undertaken several new projects. The most significant among them, and whose construction is running ahead of schedule, is 1,050 MW (5x210MW) thermal power station at Bakreshwar (260 km from Kolkata). The plant is claimed to be significantly low cost thermal project with an estimated cost of Rs. 38 million per MW. Another big project, 900 MW (4x225MW) pumped storage hydel power station, is coming up at Purulia. This pumped storage project will utilise off-peak generation from the thermal power stations, and help in better demand and system frequency management. Among the smaller projects in the pipeline, there are hydel plants such as Gouripur (150MW), Teesta (3x22.5MW), Mongpu Kali Khola (3x1MW) and Lodhama Khola (3x1MW) hydel stations.

All these projects are coming up at a time when the state is possibly facing stagnant demand for electricity. In fact, demand for industrial power (from HT and LT consumers) shrank by about 20 percent, from 2.43 billion units at the beginning of the calendar year 1998 to 1.94 billion units at the year end. Similarly, consumption of commercial power fell from 867 million units to 749 million units, a decline by about 14 percent. The only segment which has showed signs of demand growth is the domestic sector.

Although the Central Electricity Authority has projected the peak demand for electricity to increase to 4,517 MW by 2001-02, which represents an increase

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by 173 percent over the peak demand of 2,605 MW met in 1997-98, the demand position in the state over the next couple of years is unlikely to improve significantly. A major offtake, however, could take place once the petrochemicals project at Haldia is completed and several downstream units come up.

However, more than the issue of possible oversupply power situation in the state, the Left Front government is besieged with the issues of reforming the ailing State Electricity Board (WBSEB). The financial condition of the Board, coupled with its ingrained structural and operational inefficiencies, has now become a real impediment to any power development programme in the state.

Though the state government has initiated the process of restructuring the state utility by creating a separate rural electricity development corporation to curve out rural distribution business, it has not yet firmed up the political decisions in respect of further unbundling of the electricity board and rationalisation of tariff structure. The government is now required to have fresh thinking and take couple of bold political decisions to settle the unfinished reform agenda .

In this paper, an attempt has been made to :

* review the financial and operational performance of the state electricity board;

* critically analyse the issues related to unbundling and tariff rationalisation ; and

* recommend a road-map for completing the reform agenda.

Deep Financial Crisis

Over the years, the performance of WBSEB has precipitated into a situation of deep financial crisis. With a negative rate of return of 37 percent (excluding subsidies), it now ranks close to such poor performing SEBs such as Haryana and Karnataka. The financial highlights of the Board is shown in Table 1.

The Board is faced with mounting dues and poor recovery of money against sales of power. The receivables from sales of power (including unbilled portion of revenue) now stands at over Rs. 11.5 billion, representing about 7 months' sales equivalent. Out of this amount, dues from bulk
consumers is more than Rs. 5 billion . Due to poor collection and recovery position, the Board has not been able to pay its dues to WBPDCL, NTPC, REC and

others. The total current liability, including the aforesaid dues, is currently in the vicinity of Rs. 17 billion, and the figure is estimated to go well over Rs. 20 billion by the end of 1998-99.

WBSEB has been serring around 2.8 million consumers, out of which the number of bulk consumers (HV&EHV) is 2,537. By the end of the fiscal year 1998-99, the total number of consumers was expected to reach the mark of 3 million. Industry sales and bulk supply of power contribute over 64 percent of the gross revenue of the board, while domestic and commercial sales account little over 11 percent each. Although 14 percent of available power for sale goes to agricultural consumers, revenue generation represents less than 2 percent of the total gross revenue. In fact, average revenue realisation from agriculture sector is only 19 paise per unit, which is well below the so-called prescribed minimum rate of 50 paise per unit.

Like many other SEBs in the country, a root cause of the dismal financial performance of the Board is the uneconomic and irrational structure of power tariffs. The average tariff realisation now accounts for about 76 percent of the power supply cost, including the costs of transmission and distribution of electricity.

The capital structure of the board consisted of only loan capital upto the year 1990-91. In 1992-93, the state government converted the entire amount of outstanding government loan of Rs. 5.8 billion (as on 31.03.1992) into equity capital. In subsequent year, further conversion of loan took place. The total equity capital Rs. 13.5 billion represents about 66 percent of aggregate revenue of the Board. While the restructuring of capital has reduced the interest burden, the debt-equity ratio is still much higher than what the Board can financially support. The aggregate loans or capital liabilities of the Board reached the level of Rs. 31 billion and it was estimated to go up further to Rs. 35 billion by the end of 1998-99.

Needless to say, WBSEB is now being neatly caught-up in a debt-trap. It has virtually no debt-servicing capacity. Net cash flow from operations (i.e., excluding financial flows like borrowings, interest payments,etc.) is negative. In other words, operational cash outflow is more than cash inflow from sale of power and subsidies. The operational cash deficit was estimated to be around Rs. 1.6 billion for the year 1997-98. Thus, for repaying the old loans, the Board has been compelled to go in for fresh borrowings .

Operational Performance

WBSEB relies heavily on purchase of power than its own generation. The power purchase as proportion of power available for sale is currently well over 70 percent. Its own generation is mainly from the thermal plants at Bandel (BTPS) and Santaldih (STPS). These two plants account for about 92 percent of the total generation (gross) of electricity by the Board. Another 7.5 percent of generation is hydel power, and the remaining generation comes from the gas turbine, diesel and micro hydel power stations.

However, the two thermal plants of the Board are among the worst performing plants in the country. The average PLF of 40 percent was much lower than the all-India average PLF of 64.7 percent in 1997-98. The plants are also overmanned — the person-megawatt ratio works out to be 3.7 persons per MW in BTPS, and 3.5 person per MW in STPS. Going by the NTPC norm of about 1.5 person per MW, these two plants should have been operated with no more than 50 percent of the existing manpower. Apart from all these, the cost of generation, excluding interest and depreciation charges, is as high as Rs. 1.27 per Kwh.

As far as the transmission operation of the Board is concerned, it leaves meagre surplus when revenue expenses are compared against normative wheeling/ rental charges. But, this surplus is much more than offset by the monetary value of transmission losses (figure estimated for the year 1996-97 was about Rs. 722 million considering the reported transmission loss of 5 percent.

The transmission system of the Board consists of 57 EHV sub-stations with total capacity of 6,417 MVA, and EHT line length of 5,949ct.km. The sub-transmission and distribution system, on the other hand, consists of 337 HV and 60, 556 MV & LV sub-stations, with total capacity of 5,153 MVA, and HT lines and LT lines of length 72,366 ct. km. and 67, 506 ct. km respectively. The HT-to-LT lines ratio of the Board has remained around 1:0.9 since 1991-92, as against the all-India average ratio of 1:3 . The mix of HT and LT lines conforms to ideal ratio of 1:1 and,
hence, reflects a comfortable position. The Board has a plan to make further investment of about Rs. 8.6 billion in the development of transmission and distribution systems with the funding support from the OECF.

According to the Board's official statistics, the transmission and distribution (T&D) losses are of the order of 20 percent. However, like in the case of every other SEBs, the T & D statistics are not reliable as the loss estimates are not based

on extensive energy audit. Till March 1998, the Board had completed energy audit only in few areas (Garia, Baguiati and Liluah). The commercial losses in those areas have been found significantly high - for instance, losses in Garia range between 31 percent and 41 percent. In fact, the Board has all along faced heavy loss of revenue due to rampant pilferage of energy and theft of conductors, transformers and tower members.

Apart from T &D losses, mainly commercial losses, another poor performance area of the Board is the distribution of power and revenue management. The weakness begins with the absence of reliable data-base in respect of sales to low and medium voltage (L&MV) consumers, connected load, energy fed to different distribution areas, etc., which are all key inputs to effective revenue management.

The distribution network is administratively organised into five distribution zones and circles thereunder. A study sponsored by Ministry of Power, Govt. of India, has estimated the distribution zone-wise and circle-wise profitability for the year 1996-97. All the zones, except Kolkata and Midnapore zones, incurred operating losses before charging interest and depreciation. After providing for interest and depreciation charges, all the distribution zones turned out to be loss-making zones with an estimated total loss of about Rs. 2 billion in 1996-97.

About two-third of the total manpower of the Board is engaged in the distribution and retail services. This works out to an average figure of 13 persons for every thousand consumers. In comparison, the SEBs in the states like Tamil Nadu, Gujrat or Andhra Pradesh have deployed 8 persons per thousand consumers. It is quite obvious that the Board is now having excess manpower, and even going by a conservative estimate the number of surplus people would be around ten thousand.

Despite the excess manpower, the average operation and maintenance (O&M) costs of the distribution zones do not compare as badly with other SEBs as one would expect. For instance, average O&M expenses to sales ratio for the Board is around 15.5 percent, which is somewhat higher than that of TNEB (about 14 percent) but much lower than the O&M ratio of MSEB (around 19 percent). Similarly, administrative and general expenses are not higher than several other Boards. About 1.5 percent of sales goes to meet administrative expenses of the distribution zones (whereas the figures for TNEB and MSEB are 0.9 percent and 1.3 percent respectively).

The financial losses of the distribution zones are largeley due to their poor revenue management at every stage - from raising demand to billing and collection

of dues. This would be amply evident from Table 2 which provides a comparison between WBSEB and a well performing SEB in matters of revenue management, namely, Tamil Nadu Electricity Board (TNEB).

Keeping in view that the Board's billing-collection cycle has already resulted in about 7 months' sales as receivables, it is imperative to re-engineer the entire process. In this regard, the Board must explore the feasibility of switching over to spot assessment and billing collection system, as is followed by TNEB for its 11 million LT consumers. *Prima facie*, the spot assessment and billing system of TNEB seems quite feasible an option for the Board having consumers base of only 3 millions.

The Board is also urgently required to assess actual T &D losses by undertaking a comprehensive programme for energy audit, and develop action plans to implement the measures for loss reduction. Energy audit would also help fixing responsibility for sales and collection of dues at every level of distribution set up right upto the sub-division level, which at the moment is conspicuously absent.

At present, records are not properly maintained at sub-division level (known as Group Electric Supply Level) in respect of demands raised, collections made and outstanding dues. What is more disquieting is the fact that the L & MV sales of power reported by the sub-divisions are not actual figures but estimated sales figures, arrived at by adding a margin of 10-15 percent to the amount of actual cash collections. Besides, disconnections of supply against non-payment of dues are seldom affected. All these purport to suggest a complete lack of organisational accountability for electricity sales and collection of bills. To install a system of accountability, the distribution zones and circles need to be restructured into responsibility centres (i.e., profit centres), either through internal reorganisation of the distribution set up or through unbundling the distribution business into separate distribution companies.

Unfinished Agenda

Sometime back, the state government appointed a five-member Committee to suggest a blueprint to reorganise the state power setup. Following the Committee's recommendations, the government has already established a separate corporation — West Bengal Rural Electricity Development Corporation (WBREDC) - to take over the distribution of electricity in rural areas from WBSEB. The new corporation will distribute electricity (at 400 Volts and below) in rural areas to all types of customers — domestic, commercial, industrial and agriculture.

In addition, WBREDC would set up rural energy co-operatives for distribution of electricity , as well as develop non-conventional and cheaper source of power.

The government is also contemplating to transfer the two thermal plants of WBSEB to West Bengal Power Development Corporation Ltd.(WBPDCL), and to create a separate hydel company to take over the hydel power stations of the Board.

Surprisingly, neither the government's decision to create WBREDC nor its present inclination to hive off thermal/hydel generation from WBSEB, is based on any grass-root level study on feasibility of such options or evaluation of alternative restructuring options. These policies have been originated, at best, from some gut feelings.

For instance, the move to set up WBREDC is being regarded by the government as an important step towards making the Board commercially viable. The idea has been to give subsidies to the new corporation only, thereby forcing the Board run as a commercial entity. But it is not clear how the new corporation or erstwhile distribution business of the Board would overcome the ingrained inefficiencies in revenue management leading to financial losses. Besides, the Board will still need subsidies, unless the Left Front Government goes in for radical tariff revisions, for selling power cheaper to the domestic consumers since well over 45 percent of domestic sales will remain with the Board. The creation of WBREDC is surely a hasty step taken by the government towards power sector reforms in the state.

On the flip side, the establishment of WBREDC has possibly given some signal that the Left Front Government is willing to toe the line of Orissa-type restructuring , if necessary. However, the government will have to settle the unfinished agenda, namely, developing strategy for *unbundling the Board* and *rationalisation of tariff.* In the following discussion, these two issues have been critically analysed and a road-map has been drawn up.

Unbundling the Board

As mentioned earlier, the two thermal plants of the Board (BTPS and STPS) are among the worst performing plants in the country, and their turnaround does not seem feasible under any form of the Board's management. The obvious option is to put these two plants on sale.

The generation of power is not at all the core competence of the Board. It may be recalled that 70 percent of power available for sale is being purchased by

the Board, and the cost of generation is also on rising trend. Thus, there is no rationale for holding on with the generation plants by WBSEB, especially when the state is heading towards a comfortable position in overall power supply in the years to come.

The value realisable from the sale of thermal plants will also be instrumental in liquidating significant part of the liabilities of the Board. A ballpark calculation will put the proceeds from sale of BTPS/STPS (with total capacity of 1010MW) at around Rs.10 billion .

The state government has the options to effect the sale of plants either through competitive bidding or by negotiating a deal with NTPC for taking over the two plants.

It is pertinent to note that NTPC has the track record of buying the plants of the SEBs and adjust the purchase consideration against dues for power purchase. NTPC has also demonstrated its ability to pull-up the ailing plants to a desired level of performance. For instance, NTPC took over on 03 June 1995 Talcher thermal power station (in Orissa) - a plant whose PLF had never exceeded 36 percent. Since then the plant has set a marvellous trend of continuous success, attaining the highest ever daily PLF of 85.73 percent on 22 January, 1999. NTPC has handled the problem of surplus manpower in the plant partially through internal redeployment and VRS schemes, and is now considering further redeployment of excess manpower in their upcoming projects. In short, NTPC has necessary resources to meet the required investments on modernisation / upgradation, VRS, etc., as well as it possesses the technical and managerial capabilities to run any thermal station efficiently.

The state government is also required to take a firm decision in respect of creating a separate company for taking over hydel generation from the Board. The new company, which would focus on developing hydel capacity in the state, may be in the form of a joint venture with NHPC or NTPC. An added advantage of having this joint venture will be the inflow of equity investment from NHPC/NTPC, which would once again help liquidating the liabilities of the Board.

Of late, NTPC has shown interest in entering into hydel generation. For instance, NTPC has already approached NHPC for setting up a separate joint venture company to undertake hydro power projects in the country. Keeping this in view, the state government may consider to float the proposed hydel company as a joint venture with NTPC. The offer for sale of equity stake may also become a part

of a package deal to sell off the other two plants to NTPC.

As a final part, rather the most important part, of the restructuring programme, the state government would be required to take a bold decision to hive off the zonal distribution business and retail services to separate subsidiary companies. Given the weak management and mounting losses of the distribution zones, practically no other option is left with the state government. The government may further decide to seek joint venture partners for each distribution company. This is exactly what the Haryana state government is currently pursuing as a part of its reform programmes, with funding support from the World Bank. At a later stage, the government may decide about off-loading its equity stake in favour of private investment.

However, the government will have to review the role of the newly created rural corporation in the overall restructuring of the distribution business of the Board. Since WBREDC has not yet become operational, the state government will be well advised not to indulge in urban-rural bifurcation of loss laden distribution business. Let the entire business under each distribution zone be transferred to the respective distribution companies, while WBREDC may concentrate on developing non-conventional and cheaper source of power for rural electrification.

Finally, the Board may reconstitute itself as an intra-state transmission utility, which has to act as a necessary partner with Power Grid Corp. (PGCIL). It may be possible to work out mutually beneficial business tie-up with PGCIL and seek from it capital contribution for part-financing investments on extension, modernisation and upgradation of the state transmission systems. In the long-run, the transmission company may graduate into a power-trading utility, with an aim to promote buying and selling of power in the state at competitive rates. Given the future scenario of comfortable power supply in the state, this does not seem to be a remote possibility.

Rationalisation of Tariff

The tariff issues in West Bengal are no different from the other states. As would be evident from Table 3, the state utility has so far been faced with an inverted tariff structure—higher the cost of power supply, lower is the tariff. The tariff at L & MV supply-end covers only about 38 percent of cost of sales. Overall, the unit sales realisation is estimated to meet just 76 percent of the supply cost.

Table 4 brings out further the undue level of cross-subsidisation of power

supply to L & MV consumers by charging much higher tariffs to EHV/HV consumers. It also shows the inadequacy of state government subsidies to bridge the shortfall in recovering the cost of energy sales. The net shortfall for the year 1997-98 was estimated to be about Rs. 2.3 billion which is expected to go up by another Rs. 1 billion during the current fiscal year.

Needless to say, significant tariff revisions, phased over the next couple of years, would be inevitable if the government has to pursue power reforms in the state. However, that does not seem to be the reform agenda of the Left Front government at the moment. Possibly the tariff decision will be left to the judgement of the State Electricity Regulatory Commission (SERC), which is being just set up by the government and will become operational soon.

But be sure, the SERC is not going to grant the kind of tariff revisions that would be required to pull out the state utility from red, and this is not without any reason. The regulator can not compel the consumers pay for the high cost of power sales, with the L & MV distribution costs alone contributing about 40 percent of the cost. The same line of argument *inter alia* was given by the Orissa Electricity Regulatory Commission (OERC) in its first judgement on tariff proposal for the year 1997-98 submitted by GRIDCO. While the state government had permitted GRIDCO to revise tariff by 17 percent in the provisional licence issued to it, the Commission allowed less than 10 percent hike in average tariff.

Thus, any shortfall in revenue that may arise due to tariff determination by the SERC will have to be borne by the state government until the process of reforms is fructified. Prior to that, of course, the Left Front government has to take a political view on the rationalisation of tariffs, especially on issues related to upward revision of tariffs for domestic and agricultural consumers. It would be pertinent for the government to look afresh into some ground realities.

To begin with, no further cross-subsidisation by industrial and other bulk consumers would be possible. The industrial consumers all over the country are increasingly resorting to captive power plants. About 35 percent of the electricity consumed by the Indian industry comes from the captive plants. The same thing is going to happen in West Bengal. Once the state government confers upon the SERC the power to regulate investments (under Sec. 22(2)(a) of the Electricity Regulatory Commission Act, 1998) in the state power sector, the industrial consumers would find it easier to get approval for setting up captive power plants. At the moment, the state government is not allowing such plants to come up.

The other bulk consumers are also demanding lower tariff. For instance, the Indian Railways which spend Rs. 30 billion annually in buying power for electrified routes at a rate of about Rs. 4 per unit, have already asked the SEBs to reduce the tariff to half the present rate. The Railways now have a plan to buy power directly from NTPC, which will cost them only Rs.2 per unit.

All these developments are only pointer to the fact that power tariffs for EHV/HV consumers have to be rationalised and made competitive, especially under a situation of shrinking industrial demand in the state. Sooner the state government realises this, the better it is for the industrial development in the state.

In case of domestic consumers, the price of electricity must not ignore altogether the costs of power supply. The concessions in tariff to be given, if at all, should be based on their 'ability to pay' rather than on the popular concept of 'small consumer'. The state polity seems to be obsessed with the welfare of small consumers, while the fact of the matter is that a large number of them can now afford to pay for modern standards of living.

Moreover, the electricity price must signal the right value of the commodity being consumed. If the cost of power supply from alternative sources like domestic genset is taken into account, which now ranges from Rs. 2.50 to Rs. 3.00 per unit, it would be quite clear that the domestic consumers have all along enjoyed the entire consumer surplus at the perils of the state utility. The economic rationale suggests that some part of consumer surplus must always flow back to the supplier to ensure its long-term viability. But this has not happened so far. Finally, the question arises why should price of electricity remain far below the price trends of other commodities in the consumer basket ?

In as much as the provision of large concessions in tariff for agricultural consumers is concerned, it can no longer be supported with traditional socio-economic arguments. Some recent studies in other states have brought out the point clearly.

According to the expert committee report on the state utility in Maharashtra, which was submitted in 1997, about 80 percent of farmers in Maharashtra do not benefit from the huge electricity subsidies as they do not have a pumpset. Another 4 percent of farmers having metered supply gets only 1 percent of total subsidy. Only 2 percent farmers who are members of large lift irrigation schemes are the main beneficiaries of subsidised tariff for agriculture.

The position in West Bengal does not seem to be a different one from that in Maharashtra. According to the 1991 census, there were about 6 million cultivators in the state. The number must have grown by this time to well over 6 million. Out of these cultivators, not more than 2 percent seems to have energised pumpsets (as of 31.03.1997 the Board energised 0.1 million pumpsets). So, it is only a miniscule of the cultivators who have so far been benefited from the huge subsidisation of power tariff.

In another study on rural electrification, it has been observed that consumption of an additional unit of electricity results in marginal product (or extra profit) for farmers of Rs.9 in Uttar Pradesh and Rs. 70 in Madhya Pradesh. Even if the farmers were to pay for electricity for their pumpsets at the rate of Rs. 3 per kwh, which is approximately the long run marginal cost of supply, it would be only 34 percent of the incremental surplus for the UP farmers and only 4.2 percent of the incremental surplus for the MP farmers.

What is true for UP or MP may not hold good entirely in West Bengal— the figures will surely vary. But, one point is clear— there is no economic rationale for supplying power to agricultural consumers at an average realisation of around 19 paise per kwh. The marginal product from the use of energised pumpsets is bound to be much above the current price level, and it is possible to recoup the actual cost of power supply from the incremental benefit to farmers of using electricity. However, if the government still desires to pursue its political mandate, it has to bear the entire burden of subsidies and not merely a proportion thereof (see Table 4). At least, that is what is going to be the directive of the SERC (under sec.29 (5) of the ERC Act, 1988).

Finally, the Left Front government has to respond to the fundamental questions : will the state be able to bear the growing burden of electricity subsidies ? Is it possible to undertake reform programmes in the state without settling the issues of tariff rationalisation ?

Financial Restructuring

As the things stand today, financial restructuring of the state utility would require huge funds for : (i) liquidating current and capital liabilities of the Board, after they are being restructured and rescheduled ; (ii) financing investments required for systems improvement, including energy audit; (iii) implementing VRS to part with excess manpower, (iv) training and development of manpower; and (v) for providing subsidies over the next couple of years till the electricity tariffs for domestic and agricultural consumers are allowed to cover, at least, the costs of

sales. How the resources would be mobilised is definitely a mooted question, and much of the financial scheme to be developed would depend on the option being chosen by the state government for reforming the Board.

Nevertheless, the state government would be required to count heavily on the following sources of finance : (i) additional revenue from tariff revision (a 16 percent upward revision of the average tariff in 1998-99 will garner about Rs. 3 billion per annum from the expected sales of 10 billion units); (ii) proceeds from sale of thermal plants; (iii) sale of equity stake in hydel company and (iv) soft loans for reforms from domestic or multilateral funding agencies.

As far as the financial assistance from the World Bank is concerned, the Left Front government has so far resisted it whenever the Bank's loan conditions came in conflict with the government policies and political agenda . Now, there does not seem to persist many ideological issues . The government has already agreed to take financial assistance from the World Bank, to effect reforms in Calcutta Municipal Corporation (CMC). According to the World Bank proposal, a Rs.10 billion loan will be made available if the CMC agrees to introduce *inter alia* a VRS to streamline its workforce.

The other components of the financial restructuring scheme will be to write-off the state government loans to WBSEB plus continuation of subsidies to meet the shortfall in revenue till the tariffs are adequately revised.

Conclusion

Given the WBSEB's poor revenue management, mounting losses and liabilities, the state government's options to carry further the reform process seem to be limited. This paper has argued in favour of the following reform strategies / action plans :

* Sale of the two thermal plants (BTPS/STPS), preferably to NTPC;

* Creating a separate hydel company in the form of a joint venture with NHPC/NTPC to take over the hydel generation;

* Creating zonal distribution companies as subsidiary or joint ven ture companies;

* Instead of transferring the rural distribution business of the Board

to WBREDC, allowing the new corporation to focus on the development of non-conventional and cheaper source of power in rural areas;

* Reconstituting the erstwhile Board into a transmission utility with business tie-up with PGCIL;

* Undertaking rationalisation of tariff structure and providing for necessary hike in tariffs, before the SERC becomes operational;

* Drawing up action plans for energy audit, as well as for reducing the billing-collection cycle time through spot assessment and billing system; and

* Seeking institutional loans to finance the restructuring programmes.

However, to accomplish the above unfinished agenda for reforms, the Left Front government must have the political will and commitment . Besides, the government needs to act immediately. Time factor plays a critical role in any restructuring effort. With the passage of time, the losses and liabilities keep on mounting; and with every adhoc policy measure, complexities are added - thus making the whole reform task much more difficult to accomplish .

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Table 1 : Highlights of Financial Performance

(Amount in Rs. million)

	1996-97	1997-98[a]	1998-99[b]
Revenue from sales of electricity	14,552	18,992	19,915
Subsidies and grants	2,455	1,899	3,141
Accumulated losses	(-) 4,879	(-) 4,678	(-) 4,436
Receivables against sales of electricity	8,284	11,531	12,975
Subsidies receivable from government	5,515	6,804	8,125
Inventories (fuels, materials,etc)	3,660	4,048	4,701
Current liabilities	15,280	17,385	22,002
Capital liabilities	25,384	31,057	35,059

a. The figures refer to revised budget estimates of the Board which are adjusted, wherever possible, based on the unaudited results for 1997-98.

b. The projected figures are based on the Board's budget estimates and the unaudited results for 1997-98.

Table 2 : Revenue Management - A Comparison with TNEB (1996-97)

	WBSEB	TNEB
Sales of Power (Rs. billion)	14.55	43.77
Billing-Collection Cycle (months)	4 (L&MV) 2(EHV/HV)	<1 (LT) < 1 (EHT/HT)
Receivables - Billed Revenue (months' sales)	4.3	0.7
Receivables - Unbilled Revenue (months' sales)	2.5	1.2
Deposit from Consumers (% of unbilled revenue)	32.5	185.0
Disconnections for non-payment	A few cases	Almost in every case

Note : TNEB follows spot assessment and billing system for LT consumers.

Table 3 : Power Supply Cost Vs. Average Tariff

(Paise/Kwh)

Supply Level	1996-97		1997-98[a]		1998-99[b]	
	Supply Cost	Tariff	Supply Cost	Tariff	Supply Cost	Tariff
EHV-end	134.28	162.92 (121.3)	168.11	195.66 (116.4)	178.46	202.60 (113.5)
HV-end	151.87	275.98 (181.7)	188.00	313.98 (167.0)	198.40	309.54 (156.0)
L&MV - end	249.69	80.99 (32.4)	284.13	115.71 (40.7)	297.00	111.91 (37.7)
Average	193.24	152.88 (79.1)	223.00	189.39 (84.9)	249.00	189.58 (76.1)

a. Calculations are based on revised budget estimates of the Board.
b. Calculations are based on budget estimates of the Board.

Notes : 1. Average cost of power purchase is as follows :

(Paise / Kwh)

1996-97 (Actual)	1997-98 (Revised Estimate)	1998-99 (Budget Estimate)
118.51	151.00	156.00

2. The electricity distribution cost at L & MV supply level constitutes about 40% of the total supply cost.

Table 4 : Loss of Revenue on Energy Sales to L & MV Consumers

(Amount in Rs. million)

	1996-97 (Actual)	1997-98 (RE)	1998-99 (BE)
Gross Loss of Revenue[a]	7,675	7,958	9,667
Cross-Subsidisation (EHV/HV)	3,768	4,057	4,115
Subsidies Required	3,907	3,901	5,552
Subsidies from Govt.[b]	901	1.550	1,280
Net Loss of Revenue	3,006	2,351	4,272

a. Revenue loss means the unrecovered portion of supply cost at L & MV -end.
b. Refers to the subsidy amount released (by cash/adjustment) or expected to be released by the state government .

A BALANCE SHEET APPROACH TO CORPORATE FINANCIAL REPORTING THEORY : AN OVERVIEW

A.K. Basu*

Introduction

In recent years there has been a growing tendency for the leading accounting standard-setting agencies of the world to promote the balance sheet as the foundation of their pronouncements. While the ascendancy of the balance sheet has been greeted with acclaim from many quarters, it has also been deplored by some. The profit and loss account has dominated corporate financial accounting and reporting since the 1930s and this domination still continues. Most of the accounting standards and rules that are currently being used by companies in generating their financial reporting numbers have been derived based on the idea of giving primacy to the profit and loss account. But there appears to be a growing consensus that the profit and loss account has lost much of its ability to provide a logical starting point for addressing the complex financial reporting issues of the present time. Under the profit and loss account driven system of accounting, the central theme is matching periodic revenues and expenses. It is the difference between revenues and expenses which is treated as profit . The matching process starts with the recognition and measurement of the revenues of the period. The reported revenues are then matched with the costs that have been incurred in generating those revenues. The balance sheet amounts are simply the balancing figures. The matching process often gives rise to many debit and credit balances that are neither assets nor liabilities. But even then the balance sheet has to accommodate all these inconvenient debits and credits . The most controversial aspect of the matching process relates to allocation of costs. Cost allocation is a very complex job and it becomes difficult in most cases to obtain scientific bases for allocating costs between activities and periods. Much has, therefore, to be left to individual preferences and judgements. Accounting standard-setters cannot feel comfortable with such a situation.

The balance sheet-oriented system of accounting is keyed to assets and liabilities. These are the primary financial statement elements. All the transactions

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or other economic events that affect an entity do so by bringing about changes in the entity's assets or liabilities, or both. The whole thing in the balance sheet-oriented system of accounting tends to revolve around the definitions of assets and liabilities. Assets are defined in terms of economic resources, while liabilities are defined in terms of obligations to transfer economic resources. Items that fail to satisfy the definitions of assets and liabilities cannot find a place on the balance sheet. Costs can be carried forward only if they represent assets. Under this system, the balance sheet carrying amounts are determined first and the revenue and expense amounts are then obtained as the balancing figures. The profit and loss account thus becomes subservient to the balance sheet. The system regards profit as a matter of increased well-offness in the form of growth in net wealth (assets less liabilities). This is the concept of profit the genesis of which is found in the writings of economists. The balance sheet approach is also referred to as the capital maintenance approach because it is founded on the idea that profit cannot begin until the capital of the entity has been maintained intact. Under the balance sheet approach, capital is synonymous with ownership equity, which is the residual interest in the assets of an entity that remains after deducting its liabilities. Since assets and liabilities are real things, the balance sheet approach avoids relying on subjective judgements inherent in the process of matching periodic revenues and expenses. If the balance sheet approach is strictly adhered to, it will bring about many significant changes in the way transactions and events are recognized, measured, and reported.

The objective of this article is to offer a general description of the corporate financial reporting theory that is being developed based on the idea of awarding primacy to the balance sheet. The rest of the article proceeds as follows. The next section explains the nature and scope of corporate financial reporting theory. The third section looks briefly at the limitations of the profit and loss account-oriented system of accounting. In the section that follows, an endeavour is made to discuss the basic features of the balance sheet-oriented system of accounting. The fifth section sets out the principles of recognition and measurement of assets and liabilities. A sixth section is devoted to an examination of the issues pertaining to the recognition and measurement of intangibles. The penultimate section considers the question of putting off balance sheet items on the balance sheet. The last section concludes the discussion.

The Nature and Scope of Corporate Financial Reporting Theory

Accounting theory is abstract generalisations about the world of accounting. It is expressed in the form of interrelated and internally consistent set of ideas

and concepts. The discussion of disjoined ideas and concepts does not constitute accounting theory. Many are inclined to see accounting theory "as an instrument to be used by accountants to derive proper rules and procedures" (Kam, 1985,p.376) . This may be an easy way of describing accounting theory but it can by no means be regarded as a perfect description of the nature and scope of the subject. Such a description is available in Hendriksen and Breda (1992, p.22). According to these accounting writers, accounting theory is a coherent set of principles that :

1. Provides a better understanding of existing practices to practitioners;
2. Provides a conceptual framework for evaluating existing accounting practices;
3. Guides the development of new practices and procedures.

Accounting practice has evolved over a long period of time. Its origin can be traced back to some five hundred years. But the emergence of accounting theory is relatively a recent phenomenon. Accounting theorists have not yet been able to demonstrate the kind of maturity that is found in the theories developed by their counterparts in the neighbouring disciplines such as economics and finance. In fact, accounting still does not have any single universally accepted general theory. There are only some partial or segmental theories.

Corporate financial reporting theory is a subset of enterprise accounting theory. The scope of this theory is quite limited. It is the theory that is of immediate and direct relevance to the preparation and presentation of general purpose financial statements of companies. The theory is aimed at setting out the system of reasoning that should underlie corporate financial accounting and reporting. The conceptual frameworks that have been developed by the leading accounting standard-setting bodies of the world are aimed at providing such a theory. An endeavour has been made in these conceptual frameworks to provide a coherent system of interrelated objectives and foundations that prescribes the nature, function and limits of financial accounting and reporting. The frameworks are intended to be used primarily by the standard-setting bodies in the development and reformatting of their accounting standards. They are also expected to fulfil several secondary purposes. For example, the frameworks can assist accounts preparers, auditors, regulators and others to judge how the issues which have not been covered by the existing accounting standards should be addressed. Although the frameworks developed by the different standard-setting bodies have different titles and structures, there is a remarkable degree of similarity among them as to the way they address the fundamental financial reporting issues. This has occurred due not to any strange coincidence ; the standard-setting bodies have done this rather consciously in order to promote the international harmonisation of accounting standards.

The US Financial Accounting Standards Board (FASB) is the pioneer in the matter of development of a conceptual framework of accounting. It undertook a project in the mid 1970s with the objective of development of an agreed conceptual framework that could be used as the basis for setting accounting standards. The FASB was very much enthusiastic about the project and spent millions of dollars on it. The framework was issued in separate concepts statements titled as *Statements of Financial Accounting Concepts (SFAC).* This encouraged many other standard-setting bodies, including the International Accounting Standards Committee (IASC) , to undertake programmes for developing their own conceptual frameworks. Some of these bodies have already issued their conceptual frameworks but they are simply the derivatives of the one developed by the FASB. The latest one in the series is the UK Accounting Standards Board (ASB)'s *Statement of Principles (SOP) (ASB, 1999).* The other accounting standard-setting bodies that have issued their conceptual frameworks include the Accounting Standards Authority of Canada (ASAC), the Australian Accounting Research Foundation (AARF), and the New Zealand Society of Accountants.

Aspects of the Theory

The financial reporting theory that the conceptual frameworks seek to provide has several aspects. The first one relates to the specification of the objectives of corporate financial reporting. This is a very important task because different objectives may entail completely different types of financial reporting. The frameworks adopt a decision-usefulness approach to corporate financial reporting. According to this approach, the principal objective of corporate financial reporting should be to provide information useful for making economic decisions. Since investors are the ultimate risk takers, financial reporting should aim at providing information that will assist them in making informed investment decisions. The underlying belief is that if financial reporting can satisfy the information needs of investors, the information needs of many other users of financial reports will automatically be satisfied. Investors invest in an entity in order to make gains. These gains come from two sources : dividends and appreciation in share prices. So investors are expected to be interested in getting information that will be helpful in forecasting future dividends and movements in share prices. Future dividends and share price movements are closely related to the ability of the entity to generate cash flows in the future. If financial reporting is to be useful to investors, it must provide them with information that will enable them to arrive at reasonable estimates concerning the ability of the entity to generate cash flows in the future and the risks associated with those cash flows.

The objectives of financial reporting would normally be achieved by means of financial reports containing the financial position, financial performance and changes in the financial position. The financial position is captured by the balance sheet, financial performance by the profit and loss account, and changes in the financial position by the funds or cash flow statement. It is on the basis of the information provided by these statements that investors will form their expectations concerning the future cash flows of the entity. The expectations have to be developed by the investors themselves. They may use additional information for this purpose.

Another important aspect of the theory relates to the determination of the qualitative characteristics that accounting information should have if it is to realise the stated objectives. The threshold quality is *materiality.* Accounting rules and principles have to be strictly adhered to in respect of those items that are judged to be material. Materiality affects the way in which financial reporting numbers are aggregated and packaged. The other qualitative characteristics are *relevance , reliability, comparability and understandability.* Relevance exists where the information provided by financial statements has the ability to influence the economic decisions of users. One of the key components of relevance is timeliness. If the information is not available at the time of making decisions, it will lose its capacity to influence decisions.

Reliability of information depends on its ability to represent faithfully the underlying events and phenomena. According to FASB SFAC No.2, reliability is the quality that gives assurance that the information is reasonably free of error and bias, and represents what it purports to represent (FASB, 1980). The document sees reliability as consisting of three components : representational faithfulness, verifiability and neutrality.

Users of financial statements need comparable information. Comparability enables users to identify similarities and differences between items of information in different financial reports (NZSA, 1994). Comparability can be achieved if like events are treated in a like manner. That is, consistency is required in the matter of application of accounting principles and rules. But consistency should not be practised at the cost of usefulness. If consistency produces wrong or unreliable information, it has to be broken. When changes are made in order to bring about improvement in the quality of financial reporting information, the fact should be adequately disclosed in the notes to accounts.

Understandability is a very important qualitative attribute of accounting information. Understandability represents the quality of accounting information that exists when users of that information are able to comprehend its meaning (AARF,1990). Financial information should be provided in way as to facilitate easy understanding. Understandability is, in fact, a user specific quality. Users are expected to have a reasonable level of understanding about the way accounting function is carried out. Understandability is affected by the way items are aggregated, classified, packaged and presented.

Financial statements are prepared based on some underlying assumptions. These are referred to as *fundamental accounting assumptions.* The most important assumptions are *going concern, accrual and prudence.* According to the going concern assumption, financial statements should be prepared on the assumption that the entity will continue in operation long enough to carry out its existing commitments. This assumption is necessary in order to support the benefit theory of valuation. The accrual assumption requires that the effects of transactions be recognised when they occur and not when cash is received or paid. Under the prudence assumption, it becomes necessary to exercise a reasonable degree of caution in making estimates under conditions of uncertainty. This is necessary in order to prevent assets and gains from being overstated and liabilities and losses from being understated.

One very important aspect of the theory involves identifying and defining the elements of the basic financial statements. The elements are the building blocks with which financial statements are constructed (FASB, 1985). There are two categories of financial statement elements : the balance sheet elements and the profit and loss account elements . The two categories of financial statement elements are also respectively referred to as the *stock* and *flow* elements.The elements should be defined in a clear and specific manner. There should not be any ambiguity in the definitions. The UK SOP regards the element definitions as imposing order on the financial reporting process by specifying how the classification and aggregation should be conducted (ASB, 1999,p.45). Items that fail to satisfy the element definitions cannot be included in the financial statements.

The generation of financial reporting numbers requires recognition of the occurrence of transactions and events. An item may satisfy the definition of a statement element but even then it may not qualify for inclusion in the financial statements. To qualify for recognition, the item must also satisfy the criteria of relevance and reliability. The recognition of an element simultaneously involves the recognition of another element. The recognition principle "plays an important part

in delimiting what can and what cannot be done in financial reporting and thus in providing a rigorous rationale for the process" (Rutherford,2000,p.137). The recognition principle also states when a recognised item should be derecognised. Derecognition implies elimination of an item from the financial statements. It takes place when uncertainty develops as to the continued existence of the item.

The last stage in the generation of financial reporting numbers is measurement. Measurement is the process of assigning numbers to properties or characteristics of objects. There are several bases that can be used to generate financial reporting numbers. These include historical cost, current replacement cost, exit price, and present (discounted) value of future cash flows. The measurement basis currently being used is modified historical cost. Under this system, historical values are sometimes adjusted to reflect current values. The adjustment is done when assets and liabilities are remeasured at the end of the accounting period. It is usually believed that the modified historical cost system meets the objectives of financial reporting better than the pure historical cost system (NZSA, 1994).

There is still one more important aspect of corporate financial reporting theory. This relates to specifying the concepts of capital and capital maintenance. The IASC framework attaches a great deal of importance to this theme. The framework recognizes two concepts of capital : financial concept of capital and physical concept of capital. Under the former concept, capital is synonymous with the net assets of the entity. According to the latter concept, capital is regarded as productive capacity. The measurement of periodic profits is greatly influenced by the way capital is maintained. Capital can be maintained either in financial or in physical terms. The financial capital maintenance concept does not require the use of any particular basis of measurement; it can be operated with any one of the available bases of measurement. But that cannot happen when the physical capital maintenance concept is used. This concept requires the use of the current replacement cost basis of measurement.

The Weaknesses of the Profit and Loss Account Approach

It has been stated earlier that corporate financial accounting and reporting can be keyed either to the profit and loss account or to the balance sheet. The two approaches offer completely two different perspectives for looking at the transactions and events of the entity. Under the profit and loss account approach, the preparation and presentation of the fianancial statements are governed by the accounting rules and principles of revenue recognition and cost matching. The approach regards profit as the difference between revenues and expenses. Anthony

(1983,p.68) describes the approach thus :

> The focus is on when revenue should be recognized, when expense should be recognized, the amount of revenue to be recognized, and the amount of expense to be recognized. The effect on assets and liabilities then becomes an automatic consequence of the measurement of income .

The matching approach has got a bad publicity in recent years. But there was a time when accounting principles and rules would be evaluated and judged by the single consideration of how they could be effective in improving the efficiency of the matching process. In their classic publication titled *An Introduction to Corporate Accounting Standards* brought out in 1940, Patton and Littleton (1940) made an attempt to popularise matching as a fundamental accounting concept. This proved to be successful. Patton and Littleton discarded the then prevailing notion of profit as being an increment to net wealth. Instead, they advanced the idea that profit is related to each and every event forming a part of enterprise earning activities. It was their firm belief that the most desirable course of action would be to match all incurred costs with the results to which they could be judged to relate. The arguments advanced in favour of promoting the matching concept were so convincing that it soon got widespread acceptance among accounting practitioners as well as accounting writers and matching eventually came to be established as a pervasive accounting principle. While writing about the matching concept in the mid 1960s, Hylton made the following observations about its popularity :

> In the minds of many accountants, this single convention outweighs all others ; in other words, if a given procedure can be asserted to conform to the matching concept, nothing else need be said; the matter is settled and the procedure is justified (Hylton, 1965,p.824).

The inputs to the matching process consist of two streams of resources : incoming stream of resources and outgoing stream of resources. The incoming stream of resources is known as revenues and the outgoing stream of resources as expenses. Revenues and expenses are also referred to as accomplishments and efforts respectively. The matching process begins by assigning the incoming revenue stream to time periods. Expense recognition takes place subsequently. Revenue recognition takes place when goods or services are sold to external parties at a bargained price. This is the point at which revenue is said to have been realised . Revenue recognition may take place before it is realised in some exceptional circumstances. Revenues and expenses should be matched based on some logical rules and principles. According to the 1964 Concepts and Standards Committee of

the American Accounting Association, "costs should be related to revenues realized within a specified period on the basis of discernible positive correlation of such costs with the recognized revenues" (AAA, 1964, p.369). The Committee identifies three categories of costs : costs directly associated with specific results, costs associated with a group of results, and costs which lose their ability to produce future revenues. The costs that belong to the third category are known as losses.

Costs represent sacrifices — sacrifices made in acquiring goods and services. Expenses are expired costs. If costs expire without rendering any benefits, these are treated as losses. There are many costs the beneficial lives of which extend to several accounting periods. These costs have to be allocated to the different periods expected to be benefited by them. The portions of the costs that expire during a period should be expensed against the recognised revenues of that period and the unexpired portions should be transferred to the balance sheet as assets. But the measurement of cost expiry is a difficult task. According to Thomas (1974), the allocations involved in the process of matching revenues and expenses must almost always be incorrigible, that is to say they can neither be refuted nor verified. To match costs with revenues, it is necessary to know what the contributions of the firm's individual inputs are. But, unfortunately, there is no way of knowing this (Thomas, 1975, p. 66). This is so because the inputs used in producing outputs interact in several different ways. According to Sprouse (1971,p.92), matching of costs and revenues is in most cases a practical impossibility and as such premium has to be placed on judgement "as to whether a cost is significantly applicable or inapplicable to a revenue and whether division of a cost into amounts deferred and amounts to be expended is appropriate or inappropriate". Another noteworthy observation of Sprouse is that the matching process does not even require a concept of income to provide a basis for making the judgement.

Some allocation -induced problems are also associated with revenues. Since revenue recognition is usually based on market transactions, the wealth accretion that takes place in one period is sometimes shifted to another period. This happens so when the outputs that are produced in one period are sold in another period. Thus there may be serious distortions in periodic performance measurement. The revenue earning process in most cases is found to be a continuous one. So there is little justification in adopting a single point as the moment of revenue recognition.

The matching process gives rise to some additional problems during periods of continuing inflation. When past costs are matched against current revenues, profits tend to get overstated. Inflation also understates the balance sheet carrying

amounts of assets. As a result, understatement occurs in the measures of net worth and capital employed. The problems may be overcome if the data generated by the historical cost system are adjusted for inflation. But inflation adjustments cannot overcome the inherent limitations of the allocation process.

The profit and loss account approach is heavily biased towards the preparers of accounts. It favours the preparers of accounts at the cost of the users. The accounts preparers are often induced to exploit the flexibility provided by the profit and loss account approach to smooth the behaviour of their reported profits. It is usually believed that the stock market has a tendency to favour those companies that are able to exhibit steady growth in their reported profit numbers. Actual profits in the real world do not normally follow a linear path. But attempts are often made company managements to create the impression that they are actually on the straight line. Profit smoothing in most cases is done by overaccruing and underaccruing expenses. In some cases revenue recognition also becomes the target. Accounting standard setters have endeavoured to reduce the scope of artificially smoothing the behaviour of reported profits by banning many questionable practices but this has not solved the problems. If reality is volatile, financial reporting should tell things as they are. The users may be misled if financial reporting fails to reflect the underlying economic reality.

The model of the business firm underlying the profit and loss account approach is a very simple one. It is built around the idea that manufacturing and trading are the dominant business activities. This simple model has lost much of its relevance in recent years. The environment of business has now become highly complex. Significant changes have also taken place in the way businesses create their wealth. But the traditional transactions - based approach fails in most cases to capture the essence of this emerging business scenario. The failure tends to become greatly pronounced when it comes to the recognition and measurement of incomplete performance. The strict adherence to realisation rule often leads to inconsistent answers in complex business situations. In fact, if the rule is faithfully adhered to, many important and significant events of modern businesses will go unrecorded. Realisation is an important event but it cannot be the key recognition event in the context of external financial reporting.

The profit and loss account approach is very simple and easy to operate. It also saves costs. These are good points no doubt but they are not enough to justify the adoption of the approach. There are also several other points that have to be taken into consideration. One of these points relates to usefulness . The output produced by a system of accounting must, after all, be useful. In fact, usefulness

ranks foremost among the criteria that are used to judge the effectiveness of an accounting system. The output of the financial accounting system is a set of financial statements. These statements must serve the information needs of those who use them. But the financial statements that are produced based on the profit and loss account approach fail miserably on this count. They have very limited ability to provide their users with the information they need to make rational economic decisions.

The most serious deficiency of the profit and loss account-based system of accounting relates, perhaps, to its inability to provide rigorous, coherent and consistent definitions of the elements of the financial statements. It is difficult to bring about any significant improvement in the quality of financial reporting if the definitions with which to work are incoherent and inconsistent. The profit and loss account approach breeds a kind of circularity in the reasoning process that makes things unpalatable to those who are logically oriented. Under this approach, accounting fundamentals are derived from accounting practice and these fundamentals are then used to justify that practice. A circular reasoning cannot be valid because it uses a statement to prove the conclusion and the conclusion to prove the statement.

The Balance Sheet Approach

If financial reporting is to be effective in generating information useful for making investment, credit and similar other economic decisions, it has to be founded on a solid theoretical foundations. The profit and loss account approach is founded on a very weak theoretical foundation. It fails in most cases to provide a rigorously defensible position. There is a growing realisation that the balance sheet approach is capable of providing a theoretical foundation that is more stronger and more defensible than that provided by the profit and loss account approach. Schemes have already been adopted to use the balance sheet as the logical starting point in addressing complex and conflicting financial accounting and reporting issues. The approach regards asset increments as the essence of profits. This means that genuine profits can occur only if these are backed by growths in net assets. Under this approach, the beginning amount of net assets is to be compared to the amount of the ending net assets and difference is to be adjusted for distributions to and contributions from owners. Symbolically,

$$\Pi_t = NW_t - NW_{t-1} + D_t - I_t$$

Where :

Π = Profit

NW = Net worth

D = Distributions to owners

I = Contributions from owners

t = Time period

Since net worth is the difference between assets (A) and liabilities (L), the above equation can be redrafted as follows :

$$\overline{\Lambda}_t = (A_t - L_t) - (A_{t-1} - L_{t-1}) + D_t - I_t$$
$$= (A_t - A_{t-1}) - (L_t - L_{t-1}) + D_t - I_t$$
$$= \Delta A_{t-1} \longrightarrow t - \Delta L_{t-1} \longrightarrow t + D_t - I_t$$

The above formulation shows that asset and liability changes (ΔA and ΔL) are the sources of profits.

The concept of profits underlying the above is essentially a capital maintenance concept. It is derived from the Hicksian concept of individual income. According to this concept, the income of an individual is defined as the amount he can consume during the income period and still expect to be as well off at the end of the period as at the beginning (Hicks, 1948,p.172). This definition cannot be directly applied to a company for the simple reason that companies are unable to perform any consumption activity. If the definition is to be applied to a company, it has to be subjected to some modifications. According to the modified definition, a company's net profit in a given year is the amount it can distribute to the owners (i.e., equity shareholders) during the year and still expect to be as well off at the end of the year as at the beginning. A company remains as well off at the end of a period as at the period's beginning if the value of its net worth at the period's end equals that at the beginning. This is what is usually referred to as "maintaining capital intact".

To make the balance sheet approach operational, it is first of all necessary to develop definitions of *assets* and *liabilities*.The terms should be defined in such a way as to facilitate the measurement of net worth values both at the beginning and at the end of the period. Since liabilities are the mirror image of assets, the key to the whole thing is the definition of assets. Under the profit and loss account approach, assets are usually defined in terms of the rules of matching. Such a definition cannot serve any meaningful purpose because it tells very little about the true characteristics of assets. According to those who are guided by the balance sheet paradigm, assets are future service potentials or future economic benefits. According to Parker (1998, p.111) an asset is "any property tangible or intangible from which future benefits are expected and of which a company has a legal right of use as a result of a past or present transaction". The central aspect of the defini-

tion is the legal right to future economic benefits . But the most recent definitions do not insist on legal ownership rights. For example, the UK SOP (ASB, 1999, para.4.6) defines assets as :

> *Assets are rights or other access to future economic benefits controlled by an entity as a result of past transactions or events.*

The key elements of the definition are *control, future economic benefits* and the *need to identify past transactions of events that give rise to the asset.* If an item is to qualify as an asset, it must be able to yield future economic benefits and those future economic benefits must be controlled by the concerned entity. Furthermore, an asset needs to be the result of past transactions or events. The criterion of control tends to suggest that two entities cannot include the same asset in their balance sheets at the same time. There are several indicators that are used to judge the existence of control. These include the ability to : sell, use, exchange, settle liabilities with, or pay dividends with it.

When assets are placed at the heart of the system, liabilities have to be secondary. The secondary nature of liabilities is reflected in the definitions provided in the conceptual frameworks. For example the UK SOP (ASB, 1999, para-4.23) defines liabilities as follows :

> *Liabilities are obligations of an entity to transfer economic benefits as a result of past transactions or events .*

According to this definition, there are three important characteristics of liabilities : *future sacrifices of economic benefits, present obligation, and past transactions or other past events.* Liabilities can arise only when there are obligations to transfer economic benefits. The obligations may be legal obligations or constructive obligations. In most cases liabilities are settled through the payment of cash. The other methods by which liabilities could be settled include transferring non-cash resources, rendering services, incurring other liabilities , and offsetting against assets.

The balance sheet has a third element. This is *ownership equity.* It is the residual amount found by deducting liabilities from assets. Ownership equity changes mainly due to earning of profits or incurring of losses. The other factors that bring about changes in ownership equity are contributions from and distribution to owners. Owners have a residual interest in the assets of the entity but, unlike creditors, they do not have the ability to insist that a transfer is made to them. Since ownership equity is residual interest in the net assets, the distinction that is made between it and liabilities is quite important.

It is observed from the profit equation referred to above that the net profit

or net loss of a period can be calculated directly by noting changes in assets and liabilities between two successive balance sheets. This might create an impression that the profit and loss account is a redundant financial statement. But that is not the case . The proponents of the balance sheet approach have never thought of cultivating any idea of dispensing with the need to prepare the profit and loss account. Instead, they have put a great deal of emphasis on this statement. What the balance sheet paradigm requires is that the profit and loss account should become subservient to the balance sheet. If profits were computed based on changes in the balance sheet values of assets and liabilities, it would yield only aggregate measures. The users of accounts are interested to know details of how profits have been generated. It is the function of the profit and loss account to provide them with such details. The profit and loss account provides information as to the details of the different components of net profits (e.g., operating profits, profits from discontinued operations, financing profits, and extraordinary gains and losses). These details are necessary in order to assist the users in assessing the ability of the entity to generate cash flows from its existing resource base.

Under the balance sheet approach, the elements of the profit and loss account are defined by reference to movements in net assets. The profit and loss account has four elements : *revenues, expenses, gains, and losses.* Revenues and gains are defined as increase in net assets or ownership equity not resulting from contribution from owners, while expenses and losses are defined as decrease in net assets not resulting from distributions to owners (FASB, 1985) . There is a distinction between revenues and gains. Revenues represent increase in net assets resulting from central ongoing operations, while gains represent increase in net assets from peripheral activities (FASB, 1985, para. 78 and para.82). A distinction is also made between expenses and losses. Expenses represent decrease in net assets from producing or delivering goods, rendering services or carrying out other activities that constitute the central ongoing operations of the entity (FASB, 1985, para.80), while losses are decrease in net assets from peripheral transactions.

The UK SOP recognises gains and losses as being the only elements of the profit and loss account. According to this document, gains and losses include items that are often referred to as revenues and expenses. It defines gains (losses) as increases (decreases) in ownership interest not resulting from contributions from owners (distributions to owners) (ASB,1999, para.4.4) .

If corporate financial reporting is developed based on the idea of giving the balance sheet the pride of place, it will bring about a fundamental shift in perspective. Under the balance sheet-based system, it is the increase in net assets that

gives rise to profit, not vice versa. Under the profit and loss account approach, changes in net assets are consequences of profit measurement. In the balance sheet-driven system, the balance sheet carrying amounts will be determined first and revenues, expenses, gains and losses will then be the balancing figures. This will be just the reverse of what is now happening under the profit and loss account-driven system. For example, in the profit and loss account-driven system revenues and expenses are determined first and the balance sheet amounts are the balancing figures. If the balance sheet paradigm is adopted, the sales revenues to be credited to the profit and loss account will be derived by adjusting the receipts from sales transactions by opening and closing debtors. Expenses and losses will also be determined based on a similar procedure. A few examples are provided below in order to explain how accounting treatments might differ under the two approaches.

Deferred Taxation

The issue of deferred taxation arises because accounting profits differ from taxable profits. In fact, deferred tax is an accounting mechanism by means of which taxable profits are reconciled with accounting profits. It is basically a matching-related issue. Deferred taxation aims at matching tax across time periods with the profits that give rise to it. The tax that is applicable to the reported accounting profits of a period is treated as an expense of the period and the difference between this amount and the amount of tax that is actually payable based on taxable profits is treated as a deferred tax. This deferred tax is transferred to the balance sheet. If the purity of the balance sheet is to be maintained then deferred tax is to be abolished and no attempt should be made to match tax with accounting profits. This is so because deferred tax does not meet the definition of an asset or a liability. There are some countries (such as Germany) where taxable profits and financial accounting profits are computed based on identical rules and principles. Tax accounting in these countries is rather a straightforward job.

Government Grants

Government grants are a kind of non-reciprocal transfers. When the government transfers resources to a company by way of grants, it does not receive equal value in return. Under the matching approach, government grants are recognised as income over the periods necessary to match them with expenses which they are intended to compensate. If the grants are capital grants, they are spread over the related asset's useful life. If the balance sheet approach is adopted,

government grants in most cases will be recognised immediately as income.

Organisational Startup Costs

Organisational startup costs are costs that are incurred by companies involved in major new undertakings that involve a *learning curve.* During the initial years, costs tend to remain very high but after some time they are stabilised at a lower figure. Organisational startup costs are usually allocated to the profit and loss account over a number of periods. But the balance sheet approach does not approve this treatment. Under this approach, it is not possible to defer these costs; they have to be immediately expensed. This is because organisational startup costs are sunk costs and cannot be recovered.

Provisioning

Provisioning is one of the most controversial issues in corporate financial reporting. Both the financial position and fianncial performance of an entity may be significantly affected by the way it accounts for provisions. Provisions are defined as amounts recognised for future expenditures that are uncertain as to amounts or timings. Companies make provisions for a variety of reasons. Provisions are often made for the goods that are sold under warranty. Many companies make provisions for potential environmental liabilities. In some cases, provisions are created even for future operating losses and for future restructuring. Most companies use provisioning as a means of profit smoothing. It is the normal practice of many companies to create large provisions in years in which profits are high and to release the same in years in which profits are low. This is possible because the matching approach permits provisions to be related to management intention. In the balance sheet-driven system, management intention is not considered to be a sufficient ground for creating provisions. Under this system, provisions can be recognised only when there are legal or constructive obligations resulting from past events and which require economic resources to settle. Provisions cannot be recognised when reliable estimates concerning the amounts of the obligations are not available .

Research and Development (R &D)Costs

Companies often spend huge amounts towards research and development. R&D activities are undertaken in the hope that they will bring about improvement in the future operating conditions of the enterprise. There is a distinction between

the activities that are known as research and those that are regarded as development. Research is basically concerned with developing new knowledge or revising existing knowledge, while development is the use of research findings in order to produce new or improved products or services, to install new production processes or systems, or to improve substantially those already produced or installed. Since R &D costs are expected to benefit future periods, they can be capitalised and expensed over the periods benefited. This is what is required under the matching approach. But the balance sheet approach has a different principle to offer as to the treatment of R &D costs. Under this approach, all R & D costs have to be expensed when incurred. The reason for offering this treatment is that the benefits of these costs in most cases cannot be identified and measured on an objective basis. The approach permits capitalisation only in those cases where R &D costs result in recognisable assets.

Depreciation

In the profit and loss account-driven system of accounting, depreciation is treated as a process of allocation of costs. There are several methods by which the costs of depreciable fixed assets can be allocated to different accounting periods. Under this system, the balance sheet carrying amounts are the balancing figures. This practice of accounting for depreciation is not consistent with the balance sheet approach. Under the pure balance sheet approach, depreciation computation has to be based on periodic revaluation of assets. It is the valuation difference that is regarded as depreciation. The approach focuses on the balance sheet carrying amount; depreciation is the balancing figure.

Losses of Development Stage Companies

Development stage companies are those companies that are devoting substantially all of their efforts to establishing new business. It may take a considerable period of time for such companies to commence their principal revenue generating operations. And even after the principal revenue generating operations are commenced, the companies may need further time to derive significant revenue from those operations. How should the losses that are incurred by the companies while in the development stage be treated ? If the matching approach is adopted, such losses can be capitalised and written off against future profits. But this practice is not permitted under the balance sheet approach .

Future Decommissioning Costs

In some cases it becomes necessary for companies to incur huge costs for terminating operations and dismantling plant and equipment. Oil companies are a good example in this context. These companies are often required to incur substantial costs for decommissioning their oil rigs at the end of their lives. The costs that are incurred for decommissioning purposes are known as *decommissioning* costs.Under the matching approach, the decommissioning costs are allocated to the periods during which the concerned asset remains in operation. But the balance sheet approach requires provisioning the whole amount of the costs from the very outset.

These are only a few examples of how accounting treatments might differ under the two approaches. There are also many other areas where similar differences could be encountered. These include accounting for employee pension liabilities, accounting for employee severance costs, accounting for self-insurance, accounting for costs of maintenance of large infrastructural assets, and accounting for product financing arrangements.

Recognition and Measurement of Assets and Liabilities

It has been mentioned earlier that the key to the balance sheet approach is the definitions of assets and liabilities. The definitions are important because they identify the characteristics that items must possess if they are to be regarded as assets or liabilities. Meeting the definitions is a necessary but not a sufficient condition for inclusion of the items in the financial statements. In addition to satisfying the definition of an asset or a liability, an item must also meet certain other criteria if it is to qualify for inclusion in the financial statements. These are referred to as *recognition criteria*. Recognition is to be followed by measurement, which is the process of determining the monetary amounts at which the elements are to be carried in the financial statements. Measurement has two aspects : the property to be measured and the scale of measurement. Both recognition and measurement have a very important role to play in accounting for assets and liabilities. In this section an endeavour will first be made to identify the criteria for recognition of assets and liabilities and this will then be followed by a discussion of how their measurement should be carried out. Recognition and measurement are relevant not only to assets and liabilities but also to other financial statements elements. But since assets and liabilities are the building blocks in the balance sheet-driven system of accounting, attention is focused on these two elements.

Recognition of Assets and Liabilities

Recognition concerns the issue of when to enter items in the financial statements. The FASB (1984) defines recognition "as the process of formally recording or incorporating an item into the financial statements of an entity". The information that is disclosed by an entity outside the basic financial statements does not constitute recognition. It is maintained by the FASB in its SFAS 87 (FASB, 1985a, para. 116) that disclosure is not an adequate substitute for recognition and that the elements that qualify for recognition should be recognised in the basic financial statements. But an item that does not meet the recognition criteria may warrant disclosure when knowledge of the item is relevant to the evaluation of the financial position and performance of the entity (IASC, 1989, para. 83) . Recognition actually involves giving representation in the financial statements of an entity of the effects on the entity of the real-world economic events and phenomena. The question of recognition of events or phenomena arises only when the assets or liabilities of the entity are affected by such events and phenomena. The UK SOP (ASB, 1999, Ch. 5) offers detailed guidelines as to how the recognition issue should be dealt with . According to the SOP, when a transaction or other event creates a new asset or a liability or adds to an existing asset or liability, that effect will be recognised if :

a) sufficient evidence exists that the new asset or liability has been created or that there has been an addition to an existing asset or liability; and
b) the new asset or liability or the addition to the existing asset or liability can be measured at a monetary amount with sufficient reliability.

The criteria "are designed to ensure that information included in financial statements passes the test of reliability as well as being relevant" (Rutherford, 2000, p. 137). The recognition criteria are to be applied subject to the cost-benefit and materiality constraints. It is not necessary to recognise an item if the cost of providing the information about it exceeds the benefits or if it is immaterial in amount (Solomons, 1986,p.125) . The recognition process falls into three stages : initial recognition, subsequent remeasurement, and derecognition. Initial recognition takes place when an item is depicted in financial statements for the first time. Subsequent remeasurement involves changing the amount at which an asset or liability was recorded at the time of initial recognition. A recognised asset or liability is to be derecognised on a subsequent date if it is eliminated due to the occurrence of another transaction or event. Derecognition may also be necessary if a recognised asset or liability fails to satisfy the recognition criteria on a subsequent date.

Transactions constitute the most common basis of recognition and derecognition of assets and liabilities. Events other than transactions may also result in the recognition or derecognition. Examples of events include discovery of resources, creation of new assets through innovation, damage caused by fire, and imposition of a penalty by court. The process of recognition of assets may be affected due to the presence of uncertainty. If the degree of uncertainty is very high, the recognition process should be deferred until the uncertainty is reduced to an acceptable level. There can be two types of uncertainty: element uncertainty and measurement uncertainty. The first type of uncertainty exists when the very existence of an item is in doubt, while the second type of uncertainty is related to the difficulty of determining the monetary amount to be attributed to an item.

Financial statement elements are interrelated. When an asset or liability or a change in an asset or liability is recognised, it must be accompained by a recognition of another asset or liability or a change in another asset or liability. For example, if a machine is purchased for cash, the machine is recognised as a new asset and cash, an existing asset, is derecognised. If the machine were purchased on credit, the recognition of the new asset would be accompained by the recognition of a new liability.

Measurement of Assets and Liabilities

Measurement is an important aspect of the process of generation of financial statements. There exists a very close connection between financial reporting theory and measurement. Measurement is basically concerned with "what is being measured and how it is being measured" (Wolk et al, 1992, p.13). If an item satisfies the recognition criteria, the item has then to be measured in order to determine the monetary amount at which it is to be included in financial statements. If financial reporting information is to serve any meaningful purpose, it must be expressed in monetary terms. Measurement accomplishes this task by assigning money values to objects.

In the conceptual frameworks, measurement issues are separated from recognition issues. But measurement and recognition issues are inextricably linked. There are many recognition issues that cannot be addressed without at first addressing measurement issues. Many (e.g., Solomons, 1986, p.126) are inclined to view recognition as being an aspect of measurement. According to Sterling (1985,p.45), the issue of when to recognise an element cannot be discussed until the measurement characteristics that are to be recognised are clearly known.

The monetary amounts to be attributed to assets and liabilities can be de-

termined based on a number of measurement bases . The ideal measurement basis is, of course, the present (discontinued) value of future cash flows. Under this basis of measurement, money values of assets and liabilities are determined on the basis of expectations. Any attempt to measure assets and liabilities by discounting future expected cash flows must be highly subjective because of uncertainty. It may not always be easy to predict future cash flows and compute appropriate discount rates on an objective basis. There are many assets that contribute jointly to the generation of cash flows. These assets create some special problems in the sphere of application of the discounted cash flow basis of measurement. This measurement basis can be used only in respect of those assets and liabilities the future cash flows of which are directly stipulated or imputed.

The most widely used measurement basis in accounting is historical cost. Under this basis, historical transaction prices constitute the foundation of accounting measurement. Historical values are objectively determinable and they can be easily understood . But these values have limited relevance to economic reality. The serviceability of historical values is greatly impaired during periods of rising prices. Moreover, the historical cost basis of measurement has little theoretical merit. Historical values lack additivity, by which is meant the quality that when all the numbers in a financial statement are added together, the sum should have the same meaning as each of the numbers taken on their own (ICAS, 1988, para.6.4). It is because of these and several other limitations that the historical cost approach to measurement has been highly condemned in recent years. Criticisms have been launched not only by academicians but also by practitioners. One of the important reasons why historical cost still prevails despite its shortcomings and flaws is the force of tradition. Historical cost has a very long tradition and it seems quite hard to break this tradition.

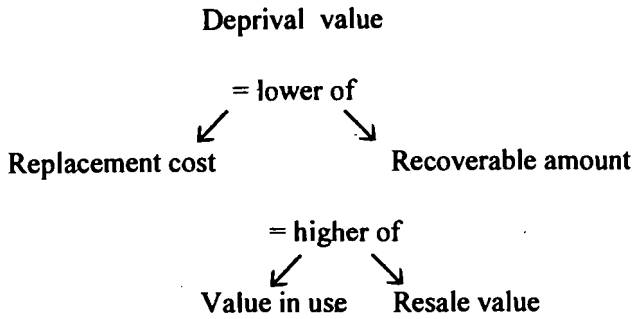
The historical cost principle is not consistent with the balance sheet approach to accounting. The approach requires accounting measurement to be based on current values. There are two principal bases of current values : current entry value and current exit value. Current entry value, often known as replacement cost, is what an asset would cost if it were to be replaced on the balance sheet date. Several arguments have been advanced for financial reporting measures to be based on current replacement cost. Those who have argued the case for current replacement cost include Edwards and Bell (1961), Sprouse and Moonitz (1962), Revsine (1973), and Gee (1976). Replacement cost has a strong support base in the Netherlands. Many Dutch companies, including the Phillips group, have used it.

Replacement values pass the additivity and usefulness tests. Replacement values are additive because all monetary equivalents are in the same scale. Because replacement values are current values, they are expected to be more useful than historical values in the context of economic decision-making. But replace-

ment values lack objectivity. They are at least less objective than historical values. The lack of objectivity of replacement values tends to become pronounced especially when the assets being measured are not identical to those currently being traded in the market.

The exit price method requires assets to be measured at their current selling prices. Exit value is sometimes called net realisable value. But the two values are not necessarily synonymous. Net realisable value is expected selling price less expected costs of realisation of the selling price. If there are no realisation costs, then two values become identical. The rationale for the use of the exit price principle has been cogently explained in McNeal (1939) , Chambers (1966) and Sterling (1970) . Chambers (1966) represents a comprehensive accounting model based on the exit price principle of measurement. A strong support for exit price has emerged from a discussion document of the Research Committee of the Institute of Chartered Accountants of Scotland (ICAS,1988). The main focus of the exit price system of accounting is on the adaptive behaviour of the entity (Basu, 1984, p. 165). Adaptivity is the key to survival. In a rapidly changing environment, the survival of an entity depends on the amount of cash it can command. If financial reporting is based on the principle of exit price measurement, it can provide information as to the cash and cash equivalents of the entity's net assets. One of the principal merits of the exit price system of accounting is that the data generated by it can be added together to obtain meaningful totals. Another key merit of the system is that it is totally allocation free. The system has several shortcomings. The most serious shortcoming of the system relates to its inability to generate useful information concerning the partly used up and unique or specialized assets.

Deprival value or value to the business provides another measurement basis in acounting. It does not focus on any single type of value. Instead, it takes into consideration a number of possible values. The principle underlying the deprival value method of measurement has been derived from a work of Bonbright (1937). Deprival value is a measure of the loss that an entity would suffer if it were to be deprived of the asset. The loss from deprival cannot exceed the amount that would be needed to replace the asset. If replacement were not contemplated on economic grounds, deprival value would equal the recoverable amount, which is the maximum value obtainable either from sale or use. Replacement is contemplated when it is profitable. To be profitable, an asset must be able to generate a surplus either by resale or use. If the asset is incapable of generating a surplus, its replacement will not be a feasible proposition on economic ground. In this situation the loss from deprival is not replacement cost but the recoverable amount. The UK SOP offers a diagrammatic view of deprival value (ASB, 1999, para. 6.8) as follows :



Deprival value measurement is carried out in the light of the economic contexts in which the assets of an entity are held.

The term "fair value" is now being used widely in accounting pronouncements. Fair value does not represent any particular type of value. It is a generic term, which can reflect a range of values (Basu, 2001, p.10). However, fair value is basically a market-based value. The IASC has arrived at an agreed definition for the term. According to this definition, fair value is "the amount at which an asset could be exchanged, or a liability settled, between knowledgeable and willing parties in an arm's length transaction" (IASC, 1995). The UK SOP ascribes to the term the same meaning as it does to the value to the business.

The measurement issue has not been adequately and properly dealt with in the conceptual frameworks. Although the conceptual frameworks refer to different measurement bases, they offer no specific guidelines as to the selection of the best measurement basis. Since measurement is a controversial and sensitive issue, the framers of the frameworks have elected to take a neutral position in this regard. This has definitely diminished the importance of the documents. The accounting standard-setting agencies are now dealing with the issue of measurement separately in their individual standards. The leading accounting standard-setting agencies of the world have prescribed current value measurement in some of their recently pronounced accounting standards. For example, the IASC has prescribed current value measurement in its standards relating to financial instruments (IAS 39), investment property (IAS 40) and biological assets (IAS 41). In the US, the FASB requires current value measurement in its standards on financial instrument (SFAS 107) and investment in debt and equity securities (SFAS 115). The UK ASB has indicated its intention to move to current value but it wants that the process of shifting from historical cost to current value should be an evolutionary rather than a revolutionary one. Thus for the time being some kind of a mixed measurement system will continue to exist. Under this system, some assets will be measured at current value while the rest will be measured at historical cost.

In the above discussion relating to measurement, attention has been focused mainly on the asset side of the balance sheet . Liability measurement is also important but it is not as troublesome as the measurement of assets. Liabilities are in most cases valued at the amounts at which they are to be settled. If the settlement date is remote, discounting may be done.

Recognition and Measurement of Intangible Assets

The importance of intangible assets in business has increased significantly in recent years. In many business (e.g., high-tech and service business), intangible assets have now become the principal driver of shareholder value. But current practice fails in most cases to recognise these assets. If the major assets that drive shareholder value cannot be recognised and measured then the balance sheet-driven framework of financial reporting loses its significance. Accounting standard-setting agencies are trying to cope with the situation by formulating new rules relating to recognition and measurement of intangible assets, but considerable gap still continues to exist.

Intangible assets are asset that do not have physical substance. In this sense monetary assets could be regarded as intangible assets. But that is not done in practice. It is only the non-monetary fixed assets without physical substance that are regarded as intangible assets. The IASC (1998) defines an intangible asset as :

> An intangible asset is an identifiable non-monetary asset without physical substance held for use in the production or supply of goods or services, for rental to others, or for administrative purposes.

The UK ASB defines intangible assets in a little bit different way. According to the ASB, intangible assets are non-financial fixed assets that do not have a physical substance but are identifiable and are controlled by the entity through custody or legal rights (FRS 10) . The key aspect in both the definitions is *identifiability.* By identifiability is meant severability. If an asset cannot be disposed of without disposing of a business, it does not satisfy the identifiability test. Tangibility, it may be pointed out here, is not any essential characteristic of an asset. The definition of assets referred to above does not make any distinction between tangible and intangible assets. But tangibility affects asset accounting in several different ways. It affects both asset recognition and asset measurement. Tangibility has also a very important role to play in the sphere of asset derecognition.

Intangible assets can be divided into three broad categories : intangible assets acquired from outside agencies, intangible assets acquired as part of the acquisition of a business, and internally developed intangible assets. The most controversial aspect of intangible asset accounting relates to recognition and measure-

ment of internally developed intangibles. In the conventional system of accounting, internally developed intangible assets are not recognised in financial statements. The costs that are incurred in developing intangible asssets are immediately expensed. There are only some minor exceptions. But this practice is now being changed. IAS 38 (IASC,1998) permits capitalisation of internally developed intangible assets if their costs can be measured reliably. According to the UK FRS 10(ASB, 1997) , internally developed intangible assets can be recognised if they have readily ascertainable market values. These tests are indeed very rigid. There are only a few assets that can satisfy these costs and market value tests.

The major intangible asset that is now recognised in accounts is purchased goodwill . Internally generated goodwill cannot be recognised. Purchased goodwill refers to the goodwill that arises when the amount paid for acquiring a business exceeds the fair value of the net assets acquired. Purchased goodwill is normally amortised over its useful economic life. An alternative practice is to write it off immediately to reserves. But the current tendency is to keep the carrying amount of purchased goodwill intact until there is evidence indicating that it might be impaired. If upon conducting an impairment test it is found that the fair value of purchased goodwill is less than the carrying amount, the difference is to be treated as a loss and that loss is to be transferred to the profit and loss account. It should, however, be mentioned in this context that purchased goodwill does not satisfy the separability test and as such it cannot be an asset in its own right. This fact is recognised in the UK accounting standard FRS 10 (ASB, 1997) . According to the standard, purchased goodwill is not in itself an asset; it is part of a larger asset called investment for which management remains accountable.

It is true that the rigidity that existed in the past in the matter of recognition and measurement of intangible assets has been removed to a great extent, but much has yet to be done. Efforts have to be made to develop completely new recognition and measurement framework if meaningful financial reporting is to take place in an environment in which economic activity is increasingly becoming intangible and immaterial. The traditional transactions-based recognition and measurement process can be of little use in this environment.

The Problems of Off Balance Sheet Financing

Off balance sheet financing is a troublesome issue in accounting. Companies often adopt tricky devices to keep financial commitments off the balance sheet. The practice of keeping finance off the balance sheet is usually referred to as a form of creative accounting. When financial commitments are kept off the balance sheet, the related assets are also excluded from it. Thus off balance sheet financing results in an understatement of both assets and liabilities. Assets and liabilities are

not included in the balance sheet if they fail to satisfy the recognition and measurement criteria . But these assets and liabilities are not regarded as off balance sheet items. By off balance sheet items are meant those items that are deliberately kept off the balance sheet through manipulation of transactions . Off balance sheet financing is practised for a variety of reasons. In many cases companies are lured into off balance sheet financing for keeping the gearing level low. Companies are often induced to keep finance off the balance sheet when they face restrictions on borrowings. Off balance sheet financing is sometimes practised in order to show higher return on capital employed.

The most widely used off balance sheet financing scheme is leasing. There are many leases that are, in substance, purchases with debt financing . If leases are not capitalised then the asset and its related financial commitment are not shown on the lessee's balance sheet. Accounting standards have been promulgated in many countries requiring companies to recognise finance leases as assets. It may be mentioned here that a finance lease is a lease that transfers to the lessee substantially all the risks and rewards incidental to ownership of an asset. There is another category of lease known as operating lease. This is a short-term lease. Schemes are now being formulated to make it obligatory for companies to capitalise all leases regardless of whether they are finance leases or operating leases . If the schemes are materialised, the problem of lease-related off balance sheet financing will be solved.

Besides leases there are also many other off balance sheet financing arrangements. These include consignment stock, securitised assets, vehicle companies, sale and repurchase agreements, loan transfers, and debt factoring. Whatever may be the form, off balance sheet financing has the potential to mislead the users of financial statements. If the sanctity of the balance sheet is to be maintained, the practice of keeping finance off the balance sheet has to be stopped. The UK ASB has sought to tackle the problems of off balance sheet financing by promulgating an accounting standard requiring companies to report the substance of transactions and not merely their legal form (ASB, 1994) . According to the standard, the substance of a transaction is to be judged by identifying its effect on the assets and liabilities of the entity. The standard has proved to be very useful in solving the problems created not only by off balance sheet financing but also by other forms of creative accounting.

Conclusion

Corporate financial reporting theory plays a very important role in determining the quality of the information generated in the financial statements of corporate entities. If corporate financial statements are to provide information useful for making economic decisions, they must be prepared based on sound accounting principles. But sound accounting principles cannot be developed without the sup-

port of a comprehensive and coherent corporate financial reporting theory. The corporate financial reporting theory, as it currently exists, is essentially a profit and loss account- driven theory. It accepts the supremacy of the profit and loss account. The theory focuses on matching costs with revenues. But the matching process has some inherent ambiguity. As a result, it fails in most cases to provide a defensible basis for addressing complex accounting issues. Efforts are now being made to develop an alternative theoretical framework based on the idea of giving primacy to the balance sheet . In the balance sheet-driven system, the focus is on assets and liabilities . The system views profit as an accretion to net wealth. Under the balance sheet approach, matching is subservient to the principle of recognition and measurement of assets and liabilities. The leading accounting standard-setting bodies of the world have already adopted the balance sheet approach in their conceptual frameworks. Accounting standards are also being formulated based on this approach.

The balance sheet approach is grounded in economic principles. To make the approach operational, it is at first necessary to develop logical and coherent definitions of assets and liabilities. Attention is then to be focused on the development of appropriate criteria for their recognition and measurement. Guidelines are also necessary as to how the criteria should be applied to individual cases. The conceptual frameworks have endeavoured to address these and other related issues. But they appear to have failed in some cases to reach the desired destination. One of these cases relates to measurement. The frameworks' coverage of this vital and controversial issue is extremely limited. The frameworks have, in fact, failed to provide principled guidance on this issue. If net wealth accretion is to constitute the basis of profit accounting then current value should be regarded as the basis of measurement of assets and liabilities . It is true that current value measurement involves a great deal of subjectivity . But this has to be accepted for the sake of achieving greater economic relevance. The proponents of current value measurement are inclined to believe that the element of subjectivity involved in current value measurement can be reduced to a significant extent through systematic study and practice.

There are also weaknesses in the criteria specified in the conceptual frameworks as to the recognition of assets and liabilities. The criteria fail to deal adequately with weightless or intangible assets. According to these criteria, most of the assets of modern knowledge-based companies cannot be captured and reported. The issue needs rethinking. New recognition criteria are needed if corporate financial reporting is to meet the challenges of the present time.

The article does not offer a complete description of the balance sheet theory of corporate financial reporting. Instead, it focuses on certain key aspects of the theory. There are many important issues that have not at all been touched upon. For

example, the article remains silent as to the issue of presentation of financial information. Financial information should be presented in an orderly and systematic manner if it is to realise its desired objectives . Bad presentation results in misinformation and that may impinge on the ability of the users to make intelligent economic decisions (Basu, 2001a, p.1). The presentation of financial information involves consideration of how financial statements should be formatted, how items should be grouped and classified, how data should be aggregated, and how explanatory details should be provided in the notes.

The balance sheet approach has not yet been embedded in corporate financial reporting practice. Although the leading accounting standard-setting bodies of the world have accepted the pre-eminence of the balance sheet, the profit and loss account approach is still dominating the standard-setting process. However, the merits of the balance sheet approach appear to have been clearly established even from its limited application. In the UK, the ASB has succeeded in eliminating many of the abusive creative accounting practices by focusing on the balance sheet paradigm . The balance sheet paradigm has also proved to be quite useful in dealing with complex business transactions. If further progress is to be achieved in corporate financial reporting, the pace of reform should be quickened. The ultimate goal should be to have a conceptually pure balance sheet. To achieve this goal, it will be necessary to overturn many accepted financial reporting practices.

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SOME CRITICAL FACTORS FOR ENHANCING THE PERCEIVEDVALUE OF BRANDS : A STUDY IN THE INDIAN CONTEXT

Tanmoy Dasgupta *
Anindya Dutta **

Introduction

Everyday the business world is rapidly transforming. More new products and new brands are coming in . The changes in competition in different product fields are so fierce that it is getting hard everyday for managers to take a decision. Even the most promising products and advertisements fail to get a position in the market. The need of the time is powerful brands. It is believed that Coca-Cola, Sony, Pepsi, McDonalds and others are successfull not because of the products only, but because of the strong image that surrounds the brand. Even today Amazon.com features among the top 50 E-brands in Fortune. But Amazon.com is yet to show any profit till date in its balance sheet. But still it is the favourite e-company of the stock market. The reason is very simple; the name is well known and the customers are loyal to the brand. In short, it has a strong brand value. After briefly surveying the management literature we have found that 'brand equity' is the most talked about subject, but yet very little has been talked about in concrete terms. What should be done to build a strong brand, especially in today's Indian context? The literature survey, which includes both books and papers, is found to be discussing only the theoretical points of view.

Al Ries and *J Trout* (1993) are of the opinion that leading a category helps people to remember the brand. It is important to be first in the market than to be better and that is why — 'Time' leads 'Newsweek' in news magazine, 'People' leads 'US' in magazine, Coca-Cola leads Pepsi, McDonalds leads Burger king etc. And in fact, being first in the market helps one to become generic, e.g. Band-Aid, Xerox, etc.

But we are of the opinion that Indian companies can hardly afford to lead the market with innovation because many cannot afford the R &D Cost that is involved in the process. *Aaker* (1991) contends that the most important assets of any business

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are intangible: its company name, brand symbols and slogans and their underlying associations with perceived quality, name awareness, customer base, etc. These assets which comprise brand equity, are the primary sources of competitive advantage. *Kapferer* (1992) in his landmark book *'Strategic Brand Management'* explains that brand management should not be done in parts; it is a holistic approach. A brand is a gestalt, rather than its parts : logo, brand name, design or packaging and image. This gestalt must be managed not just through marketing, but also throughout the entire company . *Joachimsthaler* and *Aaker* (1997) talk about building brands, just by having different brand identity and that should be linked to business vision, organisational culture and values. *Viswanathan* and *Mark*(1997) analyse the brand strategy in terms of 'Premium' degree and relative market share. But they fail to propose any applicable strategy or technique for that matter.

Biehal and *Sheinin* (1998) talk about corporate advertising, environment, brand, manager's decision framework.

Alden et. al (1999) emphasise the growth of global consumer and how brands should be positioned to make it more advantageous in this regard. In this paper also the importance of positioning has been referred to but the paper does not put forth any practical techniques to be followed.

It is a wonderful piece of management literature but it is too theoretical in its approach. After going through the literature we are of the opinion that much has been said about the importance of branding and building strong brand equity. But, not much has been said about-how to build a good brand. Even a very few techniques that have been discussed are not quite valid in the Indian context . For example, *Aaker* (1997) refers to the branding strategy of 'Body Shop' of Anita Roddrick; Body Shop is a health care shop which is very environment friendly and it does not do any harm to the animals. And this message is very prominent throughout the organisation. The company opposes testing on animals, helps third world economies through its trade, contributes to the rain forest, etc. Thus, it has gained much popularity among the Europeans. However, it should be noted that the same strategy might not yield the same level of success here in India. The awareness or the involvement of the masses in India is not as high as the common Europeans. Above all, the common people of India have many things to worry about in his day-to-day life and have little time to think about the Amazonian rain forest or about different species of monkeys in the African jungle.

In this paper we have tried to list down a few useful, at the same time economical, factors that can be easily followed by the Indian companies to en-

hance the perceived value of their brands. The list summarized here is neither exhaustive nor complete. But after going through many marketing cases of success and of failures we have been able to filter out the most important factors of branding. There are other ways of creating a strong perceived value for the brand but the techniques presented below are suited for the Indian companies and for the Indian market

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Price : a Value Creator

Price is an important decision for every product. But a brand manager has little to do with its decision. Product price is an indicator of quality [Monroe and Petroshius (1981)]. According to the views provided by Monroe (1973) and Olsen (1977) the perception of the product quality was found to be positively related to price. While discussing the subject the researchers have talked about an 'Absolute Price Threshold' — to put it into simple words, it refers to the price range that a consumer has in his mind for a product category. For example, an average X brand dishwashing powder has an Absolute Threshold of say Rs. 15-40 per kg. And now, when the product falls either far below or far above this threshold the product becomes unacceptable to the customer. So, today if a dishwashing powder is given to a housewife with a price of Rs. 2 per kg. or Rs.120 per kg., she will be forced to re-evaluate her beliefs about the brand or for the product. However, the discussion on price and perceived quality do not end here. There are many theories on this subject like the Differential Price Threshold, Assimilation Constraint Theory (Sheriff et. al. 1965), Adaptation Level Theory (Helson 1964), etc. But those discussions do not come within the scope of the present study.

Customers around the globe believe that the higher the price, the better is the product. The old microeconomic model of 'lower the price, higher is the consumption' does not hold true always. Chivas Regal, the presently famous liquor brand of America was a struggling brand until it decided to raise its price dramatically than its competitors. Its sale then took off. The relevance of price as quality cue will be more when other quality cues are not available . For example, take two computers, A and B; when all the detailed specifications are not clearly understandable, the price becomes an indicator of quality.

Akai committed this mistake in the mid nineties when they came to India. Instead of adding value to the brand, the company consistently lowered the price, which in turn diminished the value of the brand. So, within a very short time Akai became identified as a low and cheap quality product. So, Indian Marketer should re-evaluate their pricing strategy before lowering down the prices because we have

seen in different cases that price is often identified with the product quality.

Brand Name : an appeal generator

Long back Shakespeare said, "What's in a name ? That which we call rose by any other name would smell as sweet." But marketing guru Trout (1996) says, "Shakespeare was wrong. A rose in any other name would not smell as sweet . Which is why the single most important decision in the marketing of perfume is the name you decide to put on the brand. If the perfume Charlie were to be named Alfred it would have never sold as well." And Hog Island in the Caribbean Island failed to attract any tourist until the name was changed to Paradise Island. A booklet from Johnson & Johnson said, "Our Company's name and trademarks are by far our most valuable assets." According to Ries and Trout (1986) an experiment in psychology has revealed that classmates and even schoolteachers often judge a person by the name he has . A group of elementary school teachers were given two compositions written by students named David and Michael. The same compositions were given to another group of teachers, but this time the students' name were changed to Hubert and Elmer. And they were found to score lower than the previous students. Thus, we find that naming of a brand is a very important decision. But till today Indian companies are not giving due importance on it. Companies should think in terms of long run and should do the needful . Internet is boundari less and it should allow a company to be truly global. But Indian dot coms are making the mistake of stamping themselves as regional companies e.g. indya.com, Forindia.com, 123 india.com, egurucool.com, sitagita.com, etc. Most portals start to cater the needs of the local customers only, but with time they grow to be truly global. Take the case of yahoo; it was made for the benefit of a few persons only. But today it has become very popular and truly global. The name, yahoo, is a cry of joy and surprise almost in all regions and languages round the globe. On the other hand, take the example of Hotmail.com, it was developed in India by Sabeer Bhatia but unlike other Indian portals it was given a name of international flavour. Today it is a part of MSN.com; MSN would have never purchased it if it were indiamail.com or something like that. Thus, not only the perceived value but also the acceptability of the brand depends greatly on the name it has.

Channel members part of the sales force

Next important factor is Selling. Numerous studies and researches have been made in this field especially on factors like client evaluation cues (Szymanski & Churchill ,1990), sales network (Michelson, 1990), importance of gifts (Bird, 1998), personal selling techniques like SPIN (Rackham 1998). But almost nothing has been talked about the importance of the channel members and their influence

on customers. They are important parts of building the brand equity. This is especially true for channel where the competitor's products are available. For example, a TV dealer has Akai, Sony, Samsung, Onida and others. Often the buyers come up with two to three alternatives after seeing the different brands . Say, for example, a customer chooses Sony and Samsung; it is often the dealer's opinion that is sought after. And if, say, Samsung has a scheme going on, that selling X numbers of TVs the dealer gets two tickets for Singapore free it goes without saying that the dealer is going to act as a passive salesman for the brand. And that is not exactly happened for Akai. They offered nothing to the dealers other than a bare margin. While Videocon offered Mercedes Benz, LG offered trips to Australia, Samsung offered trips to Singapore, Akai offered nothing but a bare margin to the dealers. They focused on reducing the price to as low as possible. It goes without saying whom the dealers backed up and whom not. So, in building brand equity the channel members should never be ignored. The same is true not only for high priced items like TV & washing machine, but also for day-to-day items like, toiletteries, breakfast food items (biscuit, bread, cakes) and other such items.

Good brand equity is a double-edged sword that helps both the parties . A product with a high brand value not only attracts customer but it is also easy to close a sale for such a product. From the company's point of view also, a product with high brand awareness enables them to build a better distribution with better channel members. In any marketplace it shall always be less difficult for Sony to get better channel members and more channel members than a product with low brand equity.

Good Citizenship : an image builder

Last, but not the least, is the good citizenship. There are many firms that are interested in providing themselves as good citizens by being responsive to the environment and supporting social causes. The action may or may not be linked in any way to the brand's core values; Hitachi, for example, ran a four colour, eight page insert in Fortune magazine explaining what it was doing to help preserve the environment. This series served to position Hitachi with respect to environmental issues and it also provided insight into the company's values and programs. People always like those who feel and care for them. And this has to be very deeply manipulated by companies who want to increase the perceived value of the brand on the brand personality.

However, it should also be noted that it is not always to build positive feeling round the company, but such show of good citizenship keeps of envy and

jealousy and ill feeling at a distance. Large and profit making companies are not only envied by the competitors, but also gather ill feeling from poor people of the country. However, if this is not stopped then a time may come when the total accumulated ill feeling shall become more than the goodwill of the company. As in an interview J.J. Irani of TATA says "...We operate in one of the poorest parts of the country (Bihar). If we do not contribute to the region, there will be envy distrust and even dislike for us." That is why Tata runs 20 free schools in Jamshedpur, treats hundred percent of the sewage and provides quality drinking water in the taps. Likewise, India being a religious country, Birlas have built many temples all over India and named them as Birla Temples.

Or, take the example of Cadbury's Bournvita; it runs quizzes and cricket coaching camps. In 1999 the Calcutta's Bournvita cricket camp bowled out their nearest rivals for a score of zero. This happened to be a record for any level of cricket. As a result, this had drawn a lot of attention from the newspaper, T.V. and from other local magazines. It goes without saying that the brand image of Bournvita got a great boost from this. But how much does it cost Bournvita to run such a club? The yearly expenditure is, of course, much less than one week's advertisement in any of the top ten T.V. serials.

End Notes

We have discussed the strategies on enhancing the perceived value of a brand with illustration from real life, wherever it was found necessary. However, it should also be noted that there are many other techniques and strategies to achieve a higher perceived value for the brand. But after going through the present condition of the Indian market and after seeing the present problem of the Indian brand managers, we have put forth this paper . The problems in the field of branding are numerous; more and more new findings are necessary in this field. Specially when the Indian market is no more a closed economy and foreign players are already in the market. So, we invite all researchers, management practitioners and academicians for further research in this field, so that Indian brands can survive among fierce competition.

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ENVIRONMENTAL ACCOUNTING AND REPORTING IN BUSINESS

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Our earth is a planet where the nature has created an environment suitable for sustenance of life system. Land, water and air constitute three essential elements of the life supporting system of both plant and animal kingdom on earth. Sun radiation is the source of energy of driving various ecological systems. With the progress of civilization, mankind won sufficient power through development of science and technology to use nature's forces for meeting the increasing demand for food, water, fuel, clothing, building materials and other essential commodities. The use of chemical fertilizers, pesticides, etc., for improving the agricultural productivity are threatening upon the purity of the environment. Similarly, in the industrial sector burning of fossil fuels for generation of energy and transport activities release some obnoxious gaseous and liquid effluents such as carbon dioxide, sulphurous and nitrous oxides, etc. Nature is a great absorber of all these hazardous elements, but its absorbing capacity is limited. Events like global warming (through greenhouse effect), ozone layer depletion, acid rain, eutrophication of lakes, etc. are the indicators of rapid deterioration of global health caused by human activities.

In this perspective environmental costs and obligations must be measured, reported upon and disclosed. Management activities such as strategic planning and policy formulation, decision making, controlling etc. must consider environmental reporting with due importance . Again environmental accounting and its reporting is becoming essential on account of the following :

a) Increasing awareness of society about the corporate contribution for protection of environmental resources ;

b) Providing means of identifying and rewarding the society by the business firm for environmental damage ;

c) Improving creditability and reputation of business ;

d) Identifying adverse effects on the environment ;

e) Calculating true profit of the business firm.

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Accounting of Environmental Costs and Benefits

Environmental cost may be defined as the quantified value of the sacrifices of nature and or depletion of the environmental resources. The effect of different kinds of environmental hazardous elements is to be measured in terms of economic and social costs. Environmental cost and benefits can be broadly grouped into 'tangible' and 'intangible' items. Tangible environmental impacts are found physically by affecting animal and plant health, recreation facilities, soil, air and water quality, etc. Tangible environmental impact could be measured by using the opportunity cost technique such as 'change in productivity', 'loss of earning', etc. Tangible environmental impact could also be measured through direct costing system such as medical treatment cost of protection of animal and plant health, preservation cost of degraded environmental resources. Intangible environmental impacts are found in change of consumption habit, bio-diversity loss, etc. Intangible environmental impacts could be measured through 'Replacement cost' and 'Travel cost' techniques. Replacement cost technique implies cost to be incurred to preserve the degraded environmental resources. Travel cost technique implies extra cost to be incurred for change in consumption habit. Environmental benefits mean the contribution of the corporate bodies to the environment such as afforestation, improvement of water qualities, recreation facilities, protection of animal health and plant health, etc.

After quantification of different kinds of environmental costs and benefits, it can be reflected through an Environmental Income Statement. Environmental Income Statement consists of total cost of environment incurred and total benefits provided by the corporate body for protection of the environment. The preferred format of the Environmental Income Statement will be as shown on the next page :

Environmental Reporting and Disclosure :

Till date there is no standard definition of environmental costs and benefits . Measurement of those environmental costs and benefits is more difficult. Methods of accounting of environmental costs and benefits and environmental reporting practice are not standardized. In this perspective clear definition of environmental costs and benefits is needed at first, then measurement techniques have to be developed. However, both the items have been discussed in 'Accounting of Environmental Cost and Benefit' section of this write-up.

.....Ltd.

Environmental Income Statement for the year ended 31st March,.....	(Rs.)	(Rs.)
Environmental Benefits :		
Afforestation	***	
Improvement of water qualities	***	
Protection of animal and plant health	***	
Improvement of air qualities	***	
Protection of Bio-diversity	***	
Protection of soil resources	***	
Improvement of recreation facilities	***	
		***
Total Environmental Benefits (a)		***
Environmental Costs :		
Loss of animal and plant health	***	
Loss of water and air quality	***	
Deforestation	***	
Loss of Bio-diversity	***	
Soil erosion	***	
Loss of recreation facilities	***	
		***
Total Environmental costs (b)		***
Excess of Environmental Costs over Environmental Benefits or Excess of Environmental Benefits over Environmental Costs (a~ b)	***	

In the context of accounting method, it can be said that for true profit calculation excess of environmental cost over environmental benefits and vice versa as calculated in Environmental Income Statement should be charged or credited to corporate bodies' Operating Income statement .

Environmental reporting means indication of total resources of the firm, changes in it and integration of the change in resources with the national accounts. The basic aim of environmental reporting is to provide different kinds of information to management for its planning, policy formulation and monitoring the organi-

zation for sustainable growth and development of the nation. The objectives of environmental reporting are as follows :

1) Estimation of total resources related to environment and change therein,
2) Assessment of environmental costs and benefits, and
3) Estimation of total expenditure to be incurred for protection and enhancement of environmental resources.

Disclosure of environmental information includes disclosure of the basis of identification and measurement techniques of environmental costs and benefits. For fair presentation of environmental information both the Environmental Income Statement as well as disclosure part of the environmental information should be attached with corporate body's principal financial statements.

Conclusion

Increasing social awareness leads the business undertaking to recognize and undertake their responsibility to the environment. Economic development with a better environment seems to be contradictory though it is desirable to all the countries. Most of the developing countries are running for a rapid economic development without caring for protection of environment. But environmental impact assessment is now mandatory for most types of developmental projects. Many internal environmental costs have been unrecognized because they are intangible and contingent in nature. Therefore all types of environmental costs and benefits are to be properly gauged to assess environmental impact properly.

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CORPORATE SOCIAL RESPONSIBILITY REPORTING IN INDIA AND ABROAD : REVIEW OF EMPIRICAL RESEARCH

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Introduction

Corporate social responsibility (CSR) reflects the impact of a corporation's activity on society. This embodies the performance of its economic functions and other actions taken to contribute to the quality of life. These activities may be extended beyond meeting the letter of law, the pressures of competition or the requirements of contract. CSR has been widely advocated in literature over decades by Drucker (1958),Bowman (1973), Davis.K.(1975,83), Belkaoui (1981), Moson (1986), Frederick et.al (1988), Davis, J.(1991), Choudhuri (1995) etc. The concept of corporate social responsibility reporting (CSRR) finds its origin from the philosophy of corporate social responsibility which has become a widely accepted notion in the business world these days.

Review of Empirical Research

The American Accounting Association (AAA) (1972, 1974, 1976), the National Association for Accountants (NAA) (1974,1977), the American Institute of Certified Public Accountants (AICPA) (1973,1977), the 'Corporate Report' (1975), the Stamp Report (1980) and many other individual researchers all over the world have emphasized the importance of CSRR. Abt. (1971, 1972, 1974,1975), Seidler (1973), Dilley and Weygandt (1973), Linowes (1973), Estes (1976), Jaggi (1989), Porwal et.al. (1991)etc. have suggested a number of approaches on the reporting technique and have advocated the publication of CSRR in this direction. These techniques, however, range from purely narrative description of socially responsible activities to sophisticated social audit reports. All these approaches are useful in varying degrees. According to Estes (1976,P.156), "These proposals are tentative and are appropriate only during the present developmental stage of CSRR".

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In India,"as industrialisation advances, the question of how business functions, and what conceives its role to be, in short, what its social responsibilities are, becomes of paramount importance" (Jayprakash Narayan, 1966 p.vi). According to him, "business is not an end in itself, it is only a means, the end is man himself ..... It (business) must be 'just and human' in addition to making a fair and adequate return on capital and being 'efficient and dynamic'. Sachar Committee (1978) observed, 'The company must behave and function as a responsible member of the society just like any other individual ....profit is necessary but ....(it) must accept its obligation and work for the larger benefit of the Community." It also observed that the acceptance of the concept of social responsibility must be reflected in the information and disclosures that a company makes available for the benefit of the various constituents like the shareholders, creditors, workers and the community and recommended that a provision may be made in the Companies Act that every company along with the Directors' Report shall also give a 'Social Report', which will indicate and quantify, in as precise and clear terms as possible, the various activities relating to social responsibilities which have been carried out by a company in the previous year.

Consequently a number of companies in the countries like U.S.A., U.K., Australia, Canada, France, Netherlands and a few companies in India started publishing social responsibility information in their annual reports. Numerous studies have also been going on, side by side, on various dimensions and aspects of corporate social responsibility and that of its disclosure practice in annual reports, to develop the same, mainly during last three decades of the 20th Century all over the world. A number of empirical research relating to different issues of corporate social responsibility reporting, published in annual report so far, have also been carried out in India and abroad.

In this paper, an attempt has been made, on the basis of available literature, to review the empirical research on CSRR, carried out all over the world, to take note on the organisational commitment in this issue and on the state of reporting practice.

The empirical reseach on CSRR, carried out so far, can be classified in two broad categories :

I. Research relating to specific aspect of corporate social responsibility reporting.

II. Research covering different areas of corporate social responsibility reporting together.

Foreign Experience

I. Research relating to specific aspect of corporate social responsibility reporting:

Some studies have been carried out on the specific areas of CSRR, for example, environment, pollution control, charities, product or service contribution, etc.

1.*Norman Pope* (1971) carried out a study of 125 annual reports for 1969 and 136 annual reports for 1970 to examine the environmental information disclosed by the companies. He observed that most ofthe companies reported descriptive information on ecology in the President's letter to shareholders or in the body of the document while only 18 reports (6.9%) disclosed such information in the financial statements or in the related footnotes.

1. Norman Pope (1971)
2. The NAA (1975)
3. The AAA (1976)
4. Spicer (1978)
5. Ingram et.al. (1980)
6. Touche Ross Management Consultants (1990)
7. Clare Robert (1990)
8. The CIMA (1990)
9. Blaza, Andrew, J. (1990)
10. Harte et.al (1991)

2. *The National Association for Accountants* (NAA,1975) carried out a survey of 800 U.S. Corporations to identify the type of measures currently used to account for product or service contribution and to ascertain the level of interest involvement and sophistication in Accounting for product or service contribution. The sample included FORTUNE — 500 corporations and 50 largest corporations in the banking, insurance, retailing, transportations, utilities and diversified corporations. The survey pointed out that the respondents ranked the product or service contributions first amongst the four areas of social performance, *viz.* community involvement, human resource development, physical resources environmental contributions and product or service contribution. The extent of accounting for social performance was relatively less for product or service contributions than for the other four major areas of social performance. The banks and the retail corporations were the most involved in product or service contribution, whereas the diversified corporations were the least involved.

3. *The American Accounting Association* (AAA,1976) formed a 'Commit-

tee on Accounting for Social Performance' which conducted an interview with 8 companies to study ' Accounting for Social Performance' relating to charitable contribution.

4. The study made by *Spicer* (1978) covered 18 companies from the pulp and the paper industries to investigate whether there was any association between size, profitability, risk, price earning ratio of a company and its social performance. In the study it has been revealed that larger companies with better pollution control records tend to have higher profitability, larger size, lower total risk and higher price earning ratios than companies with poorer pollution control records .

5. *Ingram and Frazier* (1980) drew up different categories of pollution disclosures on the basis of content analysis and correlated each category to a pollution control performance index developed by the Council on Economic Priorities. They found no significant association between economic indicators and individual categories of pollution disclosures.

6. *Touche Ross Management Consultants* (1990) conducted an in-depth survey into attitudes towards environmental issues on the part of 32 UK companies in the latter part of 1989. On the specific issue of the reporting of environmental issues in the annual report, the survey indicated that whereas more than half the companies under study claimed to devote some coverage, only a few dealt with the issues in any depth. It was discovered in the study that environmental issues tend to take a relatively low profile compared to those relating to human resources and community involvement. The study also pointed out the rising trend in coverage of environmental issues, notably on control of emissions, conservation of company car, lead free petrol, elimination of CFCs from products and product safety.

7. *Robert Clare* (1990) analysed the annual reports and accounts of 200 companies for the years 1989 and 1990, domiciled in Western Europe, to study the extent to which the companies disclosed in their annual reports the information about the environmental impacts of their activities. In the study, it was found that the level of disclosure of environmental information was by no means adequate as it was entirely voluntary. It was also found that the only European Country with specific disclosure requirements in the area of environmental impact information is Norway.

8. *Chartered Institute of Management Accountant* (CIMA), a professional body (1990) carried out an investigation of the information contents of firms' environmental disclosure in the annual reports of 100 companies. Initial investigation

has shown that incidence of such reporting was minimal. Any mention that was made tended to be in the narrative form used largely for reporting purposes and having negligible effect on the balance sheet. The CIMA recommended that more information should be disclosed by the companies in their annual reports on environmental issues and a specialist group should be set up to make further investigations.

9. *Blaza Andrew J.* (1990), carried out a study of annual reports of 7 companies of different countries for the year ending in 1989, who have employed a systematic approach to the management of the environmental programme for many years. Their inclusion in the study, is in a way significant that they are alone in exhibiting a sound approach to environmental issues. They do, however, provide examples of good management system in practice. It was also evident from the study that such companies had recognized that they would create for themselves competitive advantages and a more stable basis for long run business planning.

10. *Harte, Lewis and Owen* (1991) analysed the annual reports of 30 UK companies for the year ending between june 1989 and March 1990 to study the trend towards greater coverage of green issues. A clear trend towards giving more exposure to green issues, particularly information pertaining to the environmental impact of corporate activity, was found while comparing the latest available annual report of companies with that of the previous year.

II. Research covering different areas of CSSR together

Some studies have also been carried out covering different areas (physical environment, community development, Human Resource and Product or Service Contribution) of corporate social responsibility reporting together.

1. *Epstein and Elias* (1975) carried out a study of 47 companies to examine the reporting of the various aspects of social responsibilities in their annual reports of 1973. The study indicated that social reponsibility reporting had assumed various dimensions, with very little commonality in its contents. Comparability amongst corporations was almost totally lacking and the firms were reporting those aspects, which reflected most favourably on them. He concluded that the areas of SRR which appeared more frequently in the annual reports of the sample corporations were : equal employment opportunity, product safety, educational aid, charitable donations, employee benefits, environment, community support programmes, etc.

2. *Bowman & Haire* (1975) analysed the annual reports of 82 American

companies for the year 1973-74. They, in their study, examined the relationship between social responsibility disclosures in annual reports and measures of efficient market performance. It was established that there was a positive relationship between two variables.

3. *Foglar & Nutt* (1975) also carried out a study of annual reports of companies with the same object as enuntiated by Bowman and Haire. But they did not find any positive relationship between the two variables, i.e., social responsibility disclosures and market performance.

1. Epstein and Elias (1975)
2. Bowman & Haire (1975)
3. Foglar & Nutt (1975)
4. Ingram (1978)
5. Trotman (1979)
6. Hogner (1982)
7. Friedman & Stagliano (1984)
8. Brooks (1986)
9. Grey. Owen & Mounder (1987)
10. Guthrie & Parker (1989)
11. Guthrie & Parker (1990)
12. Grey (1990)
13. New Consumers (1991)
14. Hall and Jones (1991)

4. *Ingram* (1978) carried out a study on the basis of information contents of firms' voluntary social responsibility disclosure in the annual reports of fortune 500 companies. He considered five significant categories of SRR, viz. environmental, fair business practices, community involvement, personnel and product. He concluded that the information contents of the social responsibility disclosure were very minimum and varied across the firms.

5. *Trotman* (1979) analysed the annual reports of 100 largest listed Australian companies, to study the social responsibility disclosure in the five major areas, viz. environment, energy, human resources, product and community involvement. The study revealed that the Australian companies were disclosing various social responsibility information and were presenting the 'Social Accounts' also in their annual reports.

6. *Hogner* (1982) analysed the social performance data published by U.S. Steel, the largest and most important business enterprise of U.S.A., in its annual reports over eight decades covering the period 1901-1980, and took a venture to relate those records to more recent concepts of corporate social accounting and reporting. In his study, he examined the reporting practice in relation to perfor-

mance of social activities of U.S. Steel over decades (i.e., community development, sanitation, worker's safety, philanthropic contribution, pollution control, etc.) and it was found that what U.S. Steel regarded as reportable corporate social activity varied over time. While particular social activities might be ongoing, inclusion in the annual report was observed to be selective — appearing in some years of activity but not appearing for other years of activity. The subjects of disclosure were concentrated upon the areas of human resources and community involvement. Some environmental disclosures appeared post 1960. In addition, Hogner found that not all reported information was in the form of 'good news' (which refers to reports about corporate activities having a positive beneficial impact on society). Some disclosures represented 'bad news' (refers to reports about activities having a negative, deleterious impact on society or failures in attempts to overcome social problems) about US Steel social activities, even when considered from the viewpoint of the social norms and expectation of the period. On the other hand, little effort was expended by US Steel in appraising its own reported social performance. He concluded that US Steel annual reports provided evidence of a rich and extended history of CSR but with disclosure frequency, particularly with respect to specific information types, fluctuating over time. According to him, "corporate social reporting is an old idea with a practical base and analysis of the US Steel experience reveals a long record of growth, decline and evolution rather than a short period of recent one-way development.

7. *Friedman and Stagliano* (1984) conducted a study to examine the relationship between 'social responsibility disclosures in annual reports and market performance' on the basis of different sample size of companies. The study showed either negative relationship or association between disclosures and share prices or no information content resulting from social responsibility disclosure.

8. *Brooks* (1986), analysed the annual reports of 16 companies from West Germany, 6 companies from Australia, 9 companies from Switzerland for two years and 29 companies from Japan and 500 companies from USA for one year period, to study the social responsibility disclosures in the six major areas, viz, Human Resources, Community involvement, Environment, Energy, Product related matters and Miscellaneous. In this study it was found that some sort of social responsibility disclosures are made by the companies from the various countries in different degrees but in descriptive nature.

9. *Grey, Owen and Mounders* (1987) carried out a study on 300 U.K. companies and on 300 companies of USA by using their annual reports for the year 1982-83 and for the year 1978 respectively to examine the reporting practice of the companies on the various aspects of social performance. They illustrated the areas in which these voluntary disclosures have been made, such as Environment, En-

ergy usage, Firm business practice, Human resources, Community involvement, Products and other social responsibilities disclosed, together with their frequency in specific sample. It was observed in the study that most of the disclosures were made in a descriptive manner and not technically designed. It was also found that the publication of social information by the USA-owned companies were comparatively higher than that by UK-owned companies.

10. *Guthrie and Parker* (1989) carried out a study on the basis of annual reports published by Broken Hill Proprietary Company Ltd. (BHP), one of the Australia's largest companies engaged in steel production, oil exploration and mining, for the past 100 years (since its inception in 1885 to 1985) to examine the history of CSR by the Co. and to discover whether the pursuit of corporate legitimacy appears to have been a primary rationale for disclosures. Total number of annual reports and half-yearly reports examined was 177. The study presented a historical appraisal of social disclosure made by BHP over years in relation to six main themes of CSR viz, environment, community involvement and others. In this study, it was found that :

a) total disclosure over the period studied varied greatly. Much disclosure occurred around 1890, 1910 and in the early 1920s, 1940s, 1970s and 1980s. Disclosure levels appear to have been variable, with intervals between 'much disclosure' ranging from 10 to 30 years.

b) Itemwise disclosures (with period reported) made by the company were as follows :

i) Environmental disclosures (1950, early 1970s and 1980s) - at a low level.
ii) Energy related disclosures (1890-1910, 1970 to mid 1980s) - at a low level.
iii) Human resources disclosures (1890-1985) inconsistent over time.
iv) Community involvement disclosures (1890-1940s, 1970, 1980-1985) - at a low level with the exception of the early 1940s.

c) Some 'bad news' were also disclosed through annual reports from time to time by the company (such as strikes, industrial problems, etc.).

d) A relationship between legitimacy theory and disclosure was only marginally supported for environmental issues, unconfirmed for energy and community issues and subject to contradictory evidence for human resources issues. Guthrie and Parker concluded that " the result of this study tends to support Hogner's (1982) contention that CSR is a long established practices".

11. *Guthrie and Parker* (1990) carried out a study on 150 largest listed companies, taking 50 each from Australia, United Kingdom and United States, on the basis of their annual reports released during the period ending 1983, to make a comparative international descriptive analysis of social disclosure practice with respect to extent and type of disclosure activity. The method of content analysis was used to examine the written material contained within the annual reports. They investigated the differences, if any, amongst the three countries under study in

respect of i) the levels of corporate social disclosure, ii) content category themes, iii) methods of social disclosure, iv) the location of social disclosure, and v) the page measurement of social disclosure. The results of the study indicated that significant differences exist between Australian, UK, and USA companies with respect to their total social disclosure levels, social content themes, methods and locations of disclosures in their annual reports to shareholders. The amount of space devoted to such disclosures did not appear to differ significantly between the countries.

12. *Gray* (1990) carried out a study of annual reports of 500 UK domiciled companies of different size and of different industrial classification over a period of ten years ending in 1987 to examine the current state of corporate social reporting practice. In the study it was found that over 60% companies under study provided some sort of voluntary disclosure of social performance in the annual report and the increasing trend of disclosure of information of different social responsibility area was also noticed over years.

13. *New consumers, a public interest research body* (1991), undertook a detailed survey of 128 companies covering some 35-40% of the consumers goods market, from July 1989 to August 1990 to study the level of disclosure in their annual reports, regarding social and environmental facts about their own performance. In the study, it was found that minimalists convention has been established so far as social and environmental reporting is concerned. It was also revealed from the study that companies also vary widely in their willingness to provide non-statutory information on environmental and social responsibility issue. The actual number of companies who returned the full questionnaire and part-questionnaire with supporting information was 32 out of 128. When the additional responses on detailed information was taken into account nearly 75% of companies in the survey cooperated to some extent during the research. A notable feature was the comparative higher response from American owned companies (32%) and other foreign owned companies (29%) compared to the response of UK- owned firms (22%)

14. *Hall and Jones* (1991) examined the extent and nature of disclosure of social responsibilities by looking at published annual reports of 30 UK companies for the year 1975, 1980 and 1985-86. For this purpose, a checklist of social information (broadly categorized into four different areas - Environment, Employee related data, Product and Community affairs) was drawn up to determine the disclosure levels of the companies surveyed. In this study it was found that the percentage of companies disclosing environmental information remained consistently low. The employee related data had got more importance as a matter of disclosure. The amount of product related information is conspicuous by its absence. The per-

centage of companies mentioning community involvement was fairly low but with rising trend over years. In the overall study it was also noticed that the average disclosure per firm held fairly constant at about 4.8 from 1975—1980, but increased markedly to 7.9 in 1985 . The general trend from 1980 — 85 was towards fuller disclosure — 19 firms were disclosing more, with only three firms disclosing less.

Indian Scene

In the context of Indian reporting practice in relation to social performance in specific / different major areas, the worthmentioning studies are as follows :

1. *Research Committee of the Institute of Chartered Accountants of India* (ICAI- 1981) carried out a study of annual reports of 202 companies (25 public sector companies and 177 private sector companies) in India for the year ending in 1979.

1. ICAI (1981)
2. Gupta, K. (1981)
3. Singh and Ahuja (1983)
4. Pradhan (1987)
5. Sengupta (1988)
6. Sengupta (1988)
7. Chander, Subhas (1989)
8. Chandra & Bhatia (1991)
9. Porwal & Sharma (1991)
10. Agarwal, R.S. (1992)
11. Eresi (1996)
12. Roy, M.N. (1996)
13. Verma (1997)
14. Sarkar (1999)

In the study, it was found that 123 out of 202 companies provided some information in their Directors' Report about companies' contribution in social responsibility areas like employees welfare, donation for social causes, spreading education, aid in national distress, family planning and health,employment, growth, pollution control. All information are of narrative nature and without quantification.

2. ***Gupta, Kamal*** (1981) carried out a study on 'Social Audit Report of TISCO 1980' which was published in the form of a booklet, as first attempt by any

company in India to have conducted a comprehensive social audit. The Report had been divided into eleven chapters. In the study, Gupta made comments that :

i) conceptually the report lacks the characteristics of Social Audit Report,
ii) no model of social audit (such as Linowes, Abt.etc.) is followed,
iii) the report seems to be somewhat inadequate so far as the quantification aspect is concerned and it is also not technically designed,
iv) no comparative analysis of the report with that of other steel industries is possible .

But according to him, the report is no doubt an interesting document and contains a highly readable description of the work done by TISCO towards discharging its social obligation. He also felt that, there are business houses in the country which have an acute social conscience even in the midst of the growing cynicism and the deteriorating values everywhere.

3. *Singh and Ahuja* (1983) examined the extent of disclosure of social responsibility in the annual reports of 40 public sector enterprises in India. He also analyzed the relationship between different organizational correlates, i.e., age, total assets, net sales, rate of return, earning margin and the nature of industries and the disclosure of social responsibility. He concluded that there was a significant variation between the companies with regard to social disclosure. He also found that size of a company with respect to total assets did have a positive influence on social disclosure. However, the age of a company and its net sales did not have any significant influence on the disclosure of social responsibility items. The rate of return did not affect the social disclosure, but the earnings margin had a significant impact on such disclosure. The social disclosure was also highly related to the nature of the industry.

4. *Pradhan B.B.* (1987) conducted a study on the basis of annual reports of 102 Indian companies for the years 1981 and 1985 to examine the corporate reporting practices in India, both statutory and non-statutory, at the two points of time. In the study, it was found that only one company under study had provided social accounting information each year though the tendency of disclosure of more non-statutory information was noticed over the same period of time.

5. *The study of Sengupta* (1988) covered 14 annual reports of eleven companies for the year ending 1982 to examine the current trend in pollution disclosure practices among few Indian and foreign companies. He observed that 21.43% of companies reported descriptive information in the President's Letter to shareholders, 42.86% of companies in the Directors' Report, 7.14% in Notes to financial

statements, 7.14% in section on social accounts and 21.43% as supplement to annual reports.

6. *Sengupta* (1988) carried out another study on annual reports of 25 Indian public enterprises of the year 1984-85. This study reviewed the pattern of capital and recurring expenditure on social overheads and aimed at examining the impact of social burden on the rate of return of those enterprises. In this study it was found that :

a) the performance of public enterprises as exhibited through the financial accounts did not reflect their actual performance;
b) both the capital and recurring expenditure on social overheads varied from enterprise to enterprise ;
c) removal of social burden from the public enterprises showed a favourable effect on the rate of return of the firm ;
d) expenditure of social overheads as discussed in the annual accounts were not exhaustive.

7. *Chander, Subhas* (1989) conducted a study on the basis of annual reports of 20 public sector companies and 24 private sector companies for the year 1986-87 to examine the quantum of corporate social responsibility (CSR) disclosure in the annual reports of both the categories of companies and to analyse the association between CSR disclosure and two corporate attributes, viz., the size of a company as measured by its net tangible assets and the profitability as measured by Return on Investment (ROI). In the study it was found that, the size of a company as measured by net tangible assets had significant effect on CSR disclosure while the profitability of a company, as measured by ROI, had insignificant, though positive effect on CSR disclosure. It was also found that the CSR disclosure by the public sector companies was significantly greater than that by the private sector companies.

8. *Chandra & Bhatia* (1991) carried out a study of annual reports of the Steel Authority of India Ltd. (SAIL), a public enterprise, for the years 1980-81 to 1987-88 to examine and to analyse the social responsibility reporting practice undertaken by the company. In the study, it was found that SAIL had made the disclosure in both the descriptive form and the quantitative form. Descriptive information was made in the annual reports in relation to companies' welfare, customer satisfaction, community development, peripheral development, energy conservation and pollution control. As per requirement of the Bureau of Public Enterprises (BPE), SAIL had also disclosed the expenses incurred on social amenities in their annual reports for the years 1980-81 to 1987-88 as quantified disclosure. Informa-

tion regarding human resource accounting, one of the five areas identified by Brummet (1973) for measuring and reporting the corporate social activity of an organization was also provided by SAIL in its annual reports from 1983-84 and onwards as quantified disclosure. SAIL had also prepared its Social Accounts in the annual reports from 1983-84 to 1987-88, on the basis of the recommendation of ABT Association (1971) with suitable modification to suit Indian conditions. In conclusion, the researchers have made comment that though the SAIL has some limitations and incompleteness in presentation of social information over years, the company deserves a special appreciation for undertaking various social activities and reporting them in its annual reports for the different years.

9. *Porwal and Sharma* (1991) carried out a study on the basis of annual reports of 30 companies from the public sector for the year ended on 31.03. 1988 and 147 companies from the private sector for the year ended on 31.03.87. A comprehensive list of 47 items was prepared relating to social responsibility, which were assigned weights according to their importance. The items were classified into five categories, i.e., environment, community, energy, human resources and the product. In this study they have examined the state of social reporting in India and have also analysed the relationship between organizational correlates viz., size and profitability and social disclosure. They found, the annual reports of most of the companies were self-servicing and lacked general quantitative aspect. According to them, 46% of the companies made some sort of social disclosure and public sector companies made more social disclosure than that of private sector companies. They also identified that out of the sample companies, 11% of the companies made disclosure on community involvement and larger companies made more disclosure than the smaller ones. High correlation between net sales and social disclosure and insignificant correlation between the rate of return and social disclosure were noticed by the researchers in the study.

10. *Agrawal, R.S.* (1992) carried out a study on 20 public enterprises (PEs) in India to assess the qualitative presentation of social information with the published annual reports of the PEs under study for three years ending in 1987 through 1989. In the study, it was found that more or less 9 (45%) enterprises reported their environmental pollution and ecological effects over nearby area. None of them showed negative aspect except one which showed bad environmental effects of their project. Industrial safety and donation for national victims were reported by all the PEs...30% of the PEs reported information regarding quality assurance. Information regarding consumers protection were reported by 25% of the sample companies. 12 companies (60%) under study reported their activities regarding family planning and welfare work for weaker section of the society. 90% of the

companies explained community welfare in their annual reports narratively where as two companies depicted expenses on these items. Information regarding minority employment was reported by all the sample PEs as it is a legal requirement as per BPE directives. 16 companies (80%) reported information regarding human resource development. 14 companies (70%) reported industrial relation in their directors' report. 12 companies (60%) reported employees participation in management' in a narrative form. Expenditures on social overheads were reported as per BPE circular by 90% of PEs under study in schedules annexed to balance sheet and profit and loss account . Out of 20 PEs only 6 (30%) reported their social income statement and social balance sheet in Abt's Model as a supplementary part of their annual accounts. The survey revealed that the basic approaches of reporting social aspects by any PEs are i) narrative approach, ii) a part of foot notes, iii) a part of schedule, iv) a separate statement of "Social overheads" and "Expenditure on Township", and v) Social Income Statement and Social Balance Sheet. These disclosures are made through directors' report, chairman's statement and supplementary information with published reports.

He concluded that in spite of growing awareness and increasing importance of social disclosures over years, the disclosure practices of PEs were not upto the mark. The overall percentage of disclosure was not fruitful. Differences in disclosure practices between years were not significant.

11. *K. Eresi* (1996) carried out a study of annual reports of 68 Indian companies for the years 1991-92 and 1992-93 covering different industry groups, viz, fertilizers and chemicals (12), engineering (9), electricals (8), iron and steel (8), textiles (10), paper and paper products (4), drugs and pharmaceuticals (6), and others (11) . The object of the study was to find out the extent to which companies were environmentally sensitive, to ascertain the extent of disclosure of information on environments and to assess the different forms of disclosure on environment. In this study it was found that :

a) only 30% of the sample companies disclosed environmental information (EI) in their annual reports ;
b) environmentally responsive companies disclosed EI only with reference to protection of environment, pollution control, conservation of energy and raw materials;
c) environmentally sensitive companies shared only positive information about environmental matters ;
d) the quantitative / financial information concerning environment was totally absent in the annual reports ;
e) the extent of disclosure remained less than one fourth page in their annual

reports and in most of the cases it was just one or two sentences.

12. *Roy,* M.N. (1996) carried out a study on the basis of annual reports of 55 Indian companies (25 from Public Sector and 30 from private sector) for the years ending in 1982, 1987 and 1991 covering a period of ten years to examine the disclosure practice on conservation of environment and their trend. In the study it was found that the trend of disclosure on environmental issues in the annual reports over years was increasing but did not gain much importance. The disclosures on conservation of environment were mainly of descriptive nature with a few quantitative information. Classification of expenditure between revenue and capital in this respect was not made. Environmental information in quantitative form was projected in 'Social Accounts' section of the annual reports as produced by one PE in 1982 and by 2 PEs in 1987 and 1991. It was also noticed, in the study, that the companies reported those issues of environment which reflected most favourably on them. He concluded that the disclosures made by the public sector undertaking were more than that of private sector companies.

13. *Verma, S.B.* (1997) carried out a study on four central government enterprises —National Textile Corporation (NTC), IDPL (Muzaffarpur), Coal India Ltd. (CIL), and Oil and Natural Gas Commission (ONGC) on the basis of their published annual reports to analyse the practice of social accounting in public undertakings. In the study it was found that the separate schedule or statement of social income and expenditure was prepared by NTC in its annual reports. The Directors' Report of the company mentioned some social welfare measures. IDPL (Muzaffarpur) informed the Government and the society in general, about the social activities undertaken by it through its annual reports. Social accounting, in case of this company, consisted of some schedules of benefits to the employees, the community and the society. On the other hand, social accounting found place as an item in the profit and loss account of Coal India Ltd. The details of social expenditure were given in the schedules of expenditure of profit and loss account of this company. So far as the ONGC was concerned, social accounting was done by the commission in a detailed and elaborative way. The commission prepared separate social income statement and social balance sheet as parts of its annual reports which consisted of three sections :

...social benefit and cost to the employee,

...social benefit and cost to the community,and

...social benefit and cost to the general public.

He observed that the area of reporting on social terms, as determined by all the 4 PEs was almost the same with a very little fluctuation in the items of reporting. He also observed that all the PEs under study furnished the social accounting informa-

tion in their annual reports both in descriptive and quantitative terms in varying degrees. He concluded that the companies under study reported only those facts which appeared to the companies in a positive manner.

14. *Sarkar, C.* (1999) carried out a study on Indian public sector undertaking (PSU) on the basis of their annual reports and other information published over a period of ten years from 1988-89 to 1997-98 to evaluate their social contribution. He identified 8 major heads of corporate social reporting in India viz., employment opportunity, foreign exchange transaction, contribution to Government Exchequer, research and development activities, social projects, environmental control, energy conservation and consumerism. In the study an overall increasing trend was noticed over the 10 year period on the 8 major heads of reporting with a small decline in the interim period. But according to him, with the exception of SAIL, other public sector units had shown reluctance to publish corporate social reports and that led to an information gap for judging the efficiency and effectiveness of the PSU and as to their shouldering of social responsibility.

The review of empirical studies on CSRR carried out in India and abroad shows that most of the studies relate to analyzing the corporate annual reports to find out whether the companies disclose the information relating to environment, human resource, community product and service etc. Some studies have also been made to notice the trend of such disclosure over the years and to find out the relationship, if any, between social responsibility disclosure in the annual reports and measures of efficient market performance. The social information are reported by the companies through their Directors' Report, Presidents' letter, Footnotes to annual accounts and through separate social accounts in a varying degree. The disclosures are made mainly in descriptive form and in a few cases in quantitative terms. *Chander and Mahajan (1993)*, in their article, opined that "the companies in the countries like USA, UK and Netherlands are more conscious about their social responsibility than their Indian counterparts and therefore, these companies report their activities in annual reports." Echoes of the same feelings have also been reflected in this review of empirical research too.

So far as social responsibility reporting in India is concerned, no commonly used normative approach has yet been developed and no Government directives or legal compulsion has been formulated in this respect. So "the disclosure of social information in the annual reports of Indian companies does not gain much importance" (*Sengupta,1988).* Only due to growing public awareness in this regard, some progressive companies in India, from both the sectors- public and private- have come forward to provide information on their social activities in published

annual reports and/or through separate means of disclosure since 1980s. Theoretical development of corporate social responsibility reporting (CSSR) - a new horizon of financial reporting- all over the world over years, are not focused in details in Indian research. The researchers have also devoted very little effort to analyse the CSRR practice of the companies in India, both in public and private sector. Again, the studies carried out in India, as mentioned earlier, are based on a very small sample and on the annual reports of the companies for one or two years only. So empirical studies made so far in India are neither able to build up any broad understanding in relation to extent and quality of CSRR, nor sufficient to exhibit the clear trend of such reporting practice followed by the companies in this context. But, however, accroding to two observers, "the demand for better deal from the business community is slowly building up and the concept of social responsibility is being accepted by some of the enlightened business corporations" (in India) [*Porwal & Sharma, 1991*] .

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PERFORMANCE ANALYSIS OF SELECTED WEST BENGAL GOVERNMENT COMPANIES

By T.K. Ghosh*

Indian economy during the last several decades had undergone a dynamic change both in social and economic fields. The pressure emanating from international financial bodies like the World Bank and the IMF has produced a series of economic forces which are both dysfunctional and catalytic for both the domestic industry and the multinational corporations (as in Auto Industry, Hindustan Motors and PAL became sick due to entry of multinational auto companies) operating in India. The dysfunctional economic forces of liberalization as well as globalization policies adopted by the Government of India from late 1980s onwards had a profound effect on the health of companies. Those could not withstand the onslaught and became sick companies. Due to political and social considerations many of these companies were subsequently taken over by the government under Industrial (Development and Regulations) Act, 1951 and thereafter nationalized. This led to accumulation of a large number of ailing units in the administrative portfolio of both the State and the Central Government. As a result, the problem of industrial sickness has assumed a very serious proportion. The compounding growth of industrial sickness has also seriously affected the banking system and high proportion of non-performing assets has already materialised . Some relevant data of outstanding bank loss and cumulative loss of the sick unit are given in Table 1.1 & Table-1.2 .

In addition, the rate of industrial growth has been lowered than expected because of incipient sickness of the companies operating in the economic environment. In order to cure the ailments of the industry, the government constituted Board for Industrial and Financial Reconstruction (BIFR) in the year 1987 to consider cases referred to under Sick Industrial Companies (Special Provisions) Act, 1985 (SICA), covering both the government and the non-government companies.

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Table-1.1

Number of sick/weak units and outstanding loan among the state government companies in West Bengal (including Bank Credit)

(Rs. in Crores)

Year ended on	Total Units	Weak Units	
		Number	Outstanding Loans (Rs.)
31.3.88	52	15	580.36
31.3.89	53	17	1241.69
31.3.90	54	20	1402.10
31.3.91	57	18	1616.29
31.3.92	61	24	1651.27
31.3.93	63	29	1704.49
31.3.94	63	32	1971.91
31.3.95	60	33	1822.44
31.3.96	61	37	1838.04
31.3.97	60	37	1883.06

Source : Report of the Comptroller and Auditor General (Commercial), Government of West Bengal.

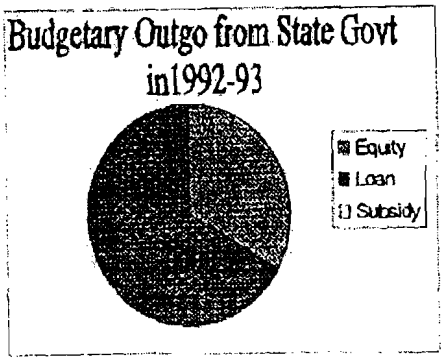
Table-1.2

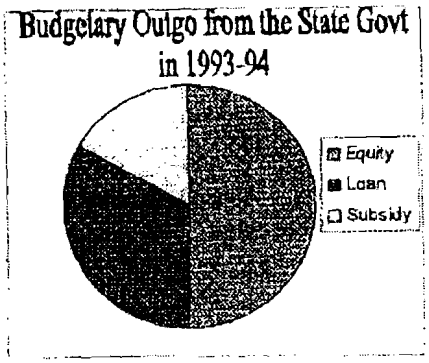
Paid-up Capital and Accumulated Loss of the State Level Public Enterprises in West Bengal

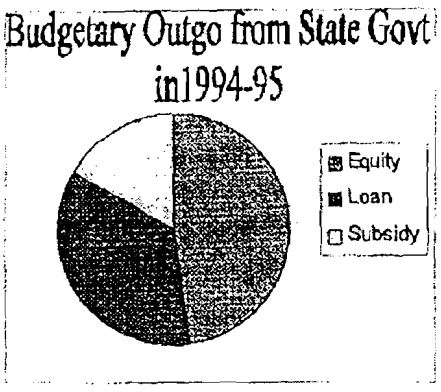
(Rs. in Crores)

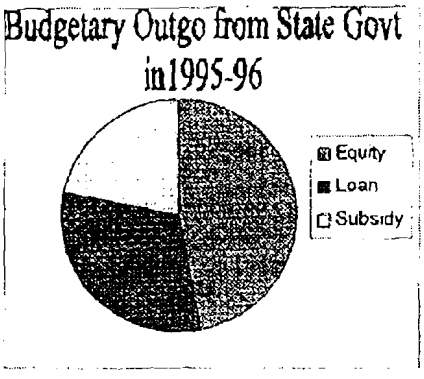
Year ended on	Paid-up-Capital (Rs)	Cumulative Loss (Rs.)
31.3.1988	278.88	239.98
31.3.1389	356.19	323.93
31.3.1990	521.21	381.38
31.3.1991	686.64	433.78
31.3.1992	779.39	490.74
31.3.1993	825.59	610.15
31.3.1994	926.12	656.08
31.3.1995	1409.54	803.40
31.3.1996	1600.25	767.10
31.3.1997	1553.81	901.69

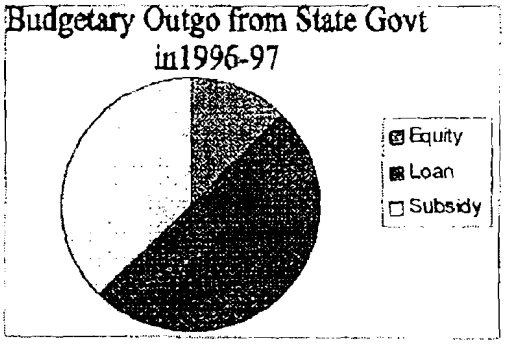
Chart 1.1. Subsidy, Equity, and Loans of West Bengal PSUs.











***SOURCE :Report of the comptroller and Auditor General of India(com),Govt. of west Bengal.**

The BIFR, since its inception in May, 1987, has received 3441 references including 225 Central and State Public Sector Undertakings upto the end of November, 1998, under the Sick Industries Companies Act (SICA), 1985. Out of these, 2404 references were registered under section 15 of SICA. While 452 references were dismissed as non-maintainable under the Act, 637 rehabilitation schemes including 28 schemes of AAIFR (Appellate Authority of Industrial Finance and Reconstruction) were sanctioned and 606 companies were recommended to be wound up. 214 companies have been declared no longer sick and discharged from the purview of SICA since the net worth turned positive after implementation of the schemes approved by the BIFR and the lead banks.

The subsidy for the last five years for the PSUs in West Bengal is another point of concern. Five pie-charts (Chart 1.1) are presented on the separate page showing the subsidy provided to the state PSUs.

Out of 225 references of Public Sector Undertakings, 157 (67 CPSUs and 90 SPSUs) were registered upto November, 1998. Rehabilitation schemes were sanctioned for 21 CPSUs and 29 State PSUs. It was recommended that 10 CPSUs and 19 State PSUs be wound up. 2 CPSUs and 4 State PSUs were declared no longer sick. Status of cases referred to BIFR as at the end of November, 1998 is given in Table 1.3. Disposal of cases by BIFR declined from 275 in 1996 to 188 in 1997 and further to 127 in 1998 (upto November, 1998).

The figures, especially the aspects of growth of sickness over time, bespoke a lack of alacrity in taking timely action. The warranted timelines of corrective action has been underlined by the fact that forewarning signals were available on different counts that could have energised government and management for taking appropriate action. Indifference to sickness, even delay in dealing with the cases referred to the government and to the BIFR, have been indication enough of this rather lukewarm attitude. This study makes an attempt to find out the nature of signals emanating from the companies chosen and includes the nature and content of the operational features of the cases chosen and analysed. The companies studied are not isolated or unique as regards the diagnostic elements. We believe, the conclusions drawn will have had relevance for all state government companies, particularly the manufacturing sector companies of the state government.

Table 1.3
Status of PSU cases referred to BIFR as on November 30, 1998

Categories of Cases	Total	Private Sector	Public Sector	
			Central PSUs	State PSUs
1. References received	3441	3216	82	143
2.Registration declined	1002	936	15	51
3. Under scrutiny	35	33	—	2
4. References registered	2404	2247	67	90
5. Dismissed as non-maintainable	452	422	5	25
6. Rehabilitation approved / sanctioned	609	559	21	29
7. Winding up recom-mended to Courts	606	577	10	19
8. Drafts Schemes issued	43	31	9	3
9. Winding up notice issued	40	34	4	2
10. Under inquiry	511	488	12	11
11. Schemes failed and reopened	24	21	2	1
12. Pending cases re-manded by AAIFR	21	20	1	—
13. Stay-order by Courts	43	42	1	—
14. Schemes by AAIFR/ Courts	28	28	—	—

Source : Public Enterprises Survey, Ministry of Industry, New Delhi, Vol.3,1998.

The Performance of the Government Companies in West Bengal

The performance of the government companies has always been a point of concern for all quarters associated with the roles assigned to these companies. Initial approach to confine the activities of government companies to the core industries and areas predominantly service and development oriented, gave way, in a phased manner, to the compulsive need for a wider domain. In tune with this altogether 66 government enterprises in West Bengal include as many as 38 manufacturing units. The rest accounts for 13 service and 15 development oriented units.

With the growing importance of the role of the government enterprises in the overall economic scenario in the State, two standing bodies, viz., Standing Advisory Committee (SAC) on Government Corporations and Standing Selection Board (SSB) were constituted by the State Government to guide and advise the undertakings, as and when necessary, in vital matters pertaining to their financial opertions, evaluation of projects and programmes and development of managerial talent and competence. Standing Advisory Committee has been designed to play the role of an agency to supplement the efforts of various State government departments administratively controlling the respective government enterprises by way of scanning the projects for turnaround and rehabilitation, making recommendations thereon, monitoring and overseeing their financial operations and examining all matters connected with their operational viability. Similarly, the Standing Selection Board has been entrusted with the important task of looking into the aspects of right choice of managerial personnel in the identified key posts of government enterprises from internal and outside sources.

General Problems Faced by Government Companies in West Bengal

The macro-level quantitative analysis on all State Level Public Enterprises (SLPEs) in West Bengal suggests a rather dismal picture. It has often been argued that profit is not the only objective of a government enterprise. In this context identification of the objectives has become all the more important. This may include broad social and economic changes that the Government may wish to bring about through the agency of public sector undertakings.

While the social objectives of the business must receive priority, this can hardly justify the unviable current operations of most of the undertakings. There seems to be a feeling among SLPEs that since the Government has promoted these units or taken them over from the private owners, the entire responsibility of pulling these along, profitably or not, falls squarely on the Government. Barring cer-

tain exceptions, these units were not able to run commercially. While it is true that some of the controversial, doubtful and grey commercial practices adopted by some in the private sector companies should be scrupulously avoided by a state-run unit, there is hardly any reason why these units cannot introduce flexibility in operations in tune with commercial prudence. An eye should always be kept on the overall viability of the undertakings — social, technical and economic.

The problems that we encounter in this context are almost insurmountable. We must have some measurable yardsticks to appraise the performances of public enterprises in achieving the declared objectives, but these are measurable only in degree, e.g., removal of concentration of economic power, re-distribution of income, self-sufficiency in technology, generation of employment, etc. In this context, it is necessary to evolve measurable key indicators to assess the performances of public enterprises . It is possible to evolve the indicators to assess the performances of public enterprises. It is possible to evolve the indicators if the objectives are clearly defined.The long term objectives flow from the basic compulsion — predominantly rural economy, skewed distribution of income, unemployment, unexploited natural resources, etc. These compulsions will remain for many years to dictate policies in regard to public investment.

Most of these units are in bad economic shape with complete erosion of net-worth, partial or complete erosion of governmental funds - as equity or as loan-low value addition and build-up of external and governmental liabilities. However, it is a reason for cheer that a few of the state level government companies have achieved a turn-around, with prospects of some others to follow suit.

LIST OF THE GOVERNMENT COMPANIES IN WEST BENGAL SELECTED FOR THE STUDY

Serial No.	Name of the Companies
1.	The West Bengal Small Industries Corporation
2.	Eastern Distilleries and Chemicals Ltd.
3.	Webfil Ltd.
4.	Durgapur Chemicals Ltd.
5.	National Iron and Steel Co. Ltd.
6.	Neo Pipes and Tubes Company Ltd.
7.	Saraswaty Press Ltd.
8.	The Electromedical and Allied Industries Ltd.
9.	The Kalyani Spinning Mills Ltd.
10.	The Shalimar Works Ltd.
11.	West Bengal Chemical Industries Ltd.
12.	Britannia Engineering Products and Services Ltd.

Hypothesis

The analysis of sickness of companies is restricted to unit-wise analysis, discovering the hidden causes. The study is also aimed at evaluating the effectiveness of nursing plan. The earlier studies did not specifically seek to explore the reasons for sickness in the long term operations of some of the government companies. As a result, instead of revival, the sickness becomes chronic. No systematic approach is made to counter this chronic illness.

This is a gap that calls for a detailed study. At the outset of embarking on a detailed study in this regard, we hypothesise that the managerial dynamics operating within an organisation, characterised as, corporate culture, plays a dominant role in the life-span of any corporate entity. It is this aspect that controls the inner disorder of the company. Any dysfunctional culture would lead to sickness, while a dynamic culture would lead to growth.

Object of the Study

A cursory glance of the Tables 1.1 and 1.2 reveals that there has been growing ailment of the units over the period from 1988 to 1997. The nature and dimension of ailments have thus been of serious concern and need a close scrutiny from both diagnostic and prognostic points of view. The present study makes an attempt to explore the factors responsible for the sickness and the possible ways to revive the units back to healthy state.

The adoption of the companies by the government still has not produced the desired effect of revival from sickness of the unit but has been found to have further deteriorated over time. The government efforts to rehabilitate these units and to follow a viable nursing plan have not been successful. These units thus have been relegated to a state of deep economic malaise and in a few cases, it is almost beyond revival. The government's nursing responsibility has been limited to giving cash assistance to the companies and it has never got into examining the management accountability of the adopted units. No worthwhile steps have been taken to arrest the downward trends of the companies leading to their recovery at a later stage. This has prompted several policy makers, planners, professionals, academics, economists and others to question the wisdom of government steps to take over the units for rehabilitation. It has even been argued in some quarters that the assistance to these ailing units could be fruitfully diverted to and invested in several development projects for the benefit of the country, particularly for the poor and for the infrastructural development. In fact it has been a leading question at the

present time about the government's effectiveness in arresting the phenomenon of sickness. It has also been argued that if the weak companies are allowed to die their natural death, the positive effect on the economy would have been much profound. There has been no study till now to understand and to evaluate the government's efforts in assessing its role, accountability and its performance in the revival of the companies from sick state. There is a gap in this respect and the present research effort is aimed at filling up this gap for a better understanding of the complex matrix that has inter-woven the effort of the government viz., restoring the health of the ailing units.

Criteria For Selection Of The Companies For The Purpose Of The Study

The study covers intimate details of performance analysis of sick state government companies based on personal interviews on repeated occasions with concerned executives. The companies branded sick and included in the reports by the Comptroller and Auditor General of India (CAG), had been included in the study. Moreover, revival schemes were not prepared by the companies taking comprehensive details of the aftermath into view.

In a majority of the cases, the companies chosen have had their corporate offices in Kolkata, or in the suburbs. Data collection involved feasibility constraints and in the absence of positive responses of the executives to disclose details, only those units were taken up for study in detail whose executives were concerned about discussing various matters related to the consequences of closure or 'privatisation', on the one hand, and possibility of revival, on the other.

Collection Of Data

The details of financial performance, necessary for the present study were collected from the published financial statements, viz., the Profit and Loss Account, Balance Sheet, Directors' Report, etc. The particulars pertaining to other affairs of the units were collected through extensive interviews with the members of the Board, the Company Secretary, Financial and Marketing Officials, positioned at various levels of Management, the representatives of Labour Unions and Plant Supervisors, Shop floor workers and Managers. The interviews were structured and informally oriented. In addition, information was also sought and obtained from different secondary sources like 'Economic Review' presented to the State Assembly by the State Finance Minister, the report of the Comptroller and Auditor General of India through the Accountant General of West Bengal, the report made by INDSEARCH (Pune) for State of West Bengal in October 1998 for

CAG of India, etc. Different other secondary sources were also referred to for the purpose of building up an internally consistent body of evidence regarding background condition, environmental turbulence and financial and operating constraints that ultimately led to the sickness to these companies.

Methodology

This study basically focuses on the financial analysis of state level government companies. The financial analysis includes many of significant ratios and parameters. These parameters are used to judge the financial health of the government companies.

The financial Analysis has been broadly classified into :

- Sector-wise Analysis
- Unit -wise Analysis.

Firstly, all government companies have been grouped under appropriate sectors to make sector-specific comparison as well as evaluation. Further the government companies have been analysed individually, using the following significant parameters :

- Total Capital Employed (Tangible Assets)
- Total Sales and Other Income
- PBDIT
- PBT/PAT
- Asset Utilisation
- Gross Value Added per Rupee of Wages Paid
- Net Worth
- Contribution to the Exchequer
- Implied Subsidy

Based on the performance of the above parameters the individual government companies have been rated. Rating ranges between α_1 to $\alpha_5$on the positive scale and β_1& $\beta_2$on the negative scale. Sectorwise threshold limits have been taken for each of the parameters. Threshold limits are decided based on large sample of data on national basis covering cross section of units. Scores have been assigned to these ratings on the following bases:

- α_1 gets a score of +0.20 . This score is increased in multiples of 0.20 upto a value of 1.00.

- β_1 gets a score of -0.20 and β_2 gets a score 0f -0.40.

Recommendations have been made using the cumulative scores assigned to the individual government companies on the following bases :

- A government company getting a score of -1.00 and above on the negative scale indicates that the government company has fared very poorly on all fronts and hence gets classified as *"Coma state and must be given intensive care on an emergency basis"*

- A government company getting a score in the range of -0.20 to -0.80 indicates that it must be *"Administered life saving medicines"* .

- A government company which gets a score of 0.00 has been classified as *"Must Improve"* indicating that improvement in operations is required urgently; else it will invite its closure.

- A government company getting a score in the range of +0.20 to +0.80 would mean it has *"Scope for Improvement"*.

- A government company getting a score of +1.00 and above indicates that it has been performing satisfactorily and hence is classified as "Good".

Analysis Of Performance And Identification Of Causes Of Sickness

The analysis is mainly financial. However, some indicators, such as — gross value added per rupee of wages paid, contribution to exchequer, turnover as a percentage of state GDP/NDP, employment provided by government companies vis-a-vis formal employment in the state—do cover socio-economic aspects directly or indirectly. The basic premises have been that, if any state wants to use corporate form for an activity, it must, in turn, ensure that financial independence is achieved by the government company through viable and profitable activity with best possible efficient running. Mixing of other objectives is likely to leave a room for justification for non-performance due to inefficient or unviable operations.

Analysing the past performances of 12 public sector undertakings (government companies) of manufacturing sector of West Bengal over a period of 10 years (1987-1988 to 1996-97) and examining their scopes in future are the main purposes of this study.

The performances of the government companies have been evaluated based on the following main criteria :

i) Efficiency
ii) Use of Resources
iii) Liquidity Management
iv) Profitability
v) Role in the Stae Economy.

The study mainly emphasizes on quantitative analysis. This has been done by calculating various important indicators and ratios.

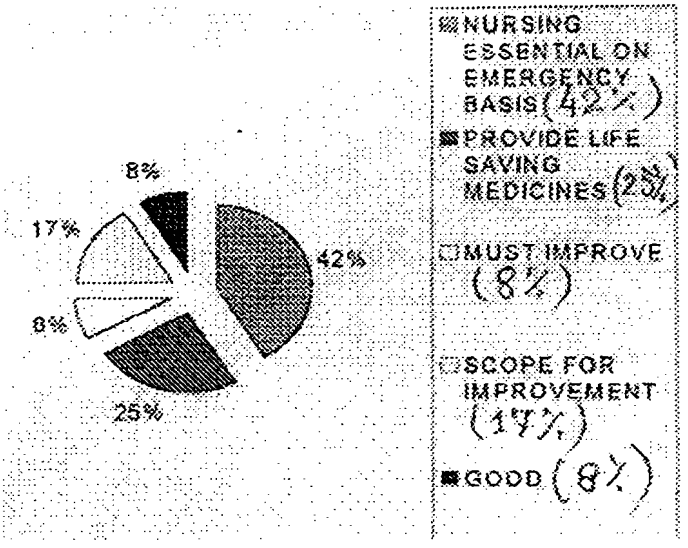
Based on the analyses, we have recommended *intensive care on an emergency basis* in case of five government companies ; for another *three* government companies *administration of life saving medicines should be provided.* Out of the remaining four units, it is believed that there is *scope for improvement* in case of *one* unit which is already performing satisfactorily and should continue to do so.

Out of the various indicators used for analysis, 6 indicators namely PBDIT, Gross Value Added (GVA) per Re. of Wages Paid, Asset Utilisation, Contribution to Exchequer, Net Worth & Implied Subsidy, have been used to arrive at final recommendations. Each Indicator has been assigned appropriate weight ranging from α_1 to α_5(on a positive scale) and $\beta_1$to β_2(on the negative scale). α_1 denotes (+) 0.20, α_2 denotes (+) 0.40 and so on, α_5 denoting the maximum score of (+) 1.00 for any individual parameter. $\beta_1$denotes (-) 0.20 and β_2(-) 0.40 Using as index, the cumulative scores achieved by the government companies have been used to arrive at the indications for recommendations. So, in a way this cardinal value '0' can be termed as 'threshold parameter', going below which a close-down is suggested, though with different levels of priority depending on the negative magnitude of the cumulative score.

The analysis on the basis of the said parameters is supported by the relevant table (Table 1.4). The study concludes with a set of recommendations, arrived at on the basis of a range of criteria used for its evaluation.

The pie-chart below depicts a synopsis of recommendations.

Pie Chart
POSITION OF GOVT. COMPANIES
(UNDER SURVEY) IN W.B. ACCORDING TO RECOMMENDATIONS



Explanatory Notes To Unitwise Analysis & Recommendations

1) Coma state necessitating intensive care on an emergency basis :

This rating is given to the government companies when they have fared very poorly on most of the fronts with negative rating (β_1 or β_2). Below is given the specific explanation for giving intensive care on an emergency basis to the following companies :

- ❑ Durgapur Chemicals Ltd.
- ❑ National Iron & Steel Company Ltd.
- ❑ Neo Pipes & Tubes Company Ltd.
- ❑ Shalimar Works Ltd.
- ❑ Britannia Engineering Products and Services Ltd.

Table- 1.4

SUMMARY ANALYSIS OF GOVT. COMPANIES IN MANUFACTURING SECTOR OF WEST BENGAL

Name	PBDIT	GVA per Rupee Wages Paid	Asset Utilis--ation	Contribu-tion to Exc--hequer	Net Worth	Implied Subsidy	Total Score	Recomm-endation	Total Assets (Rs. in Crores)	Total Sales (Rs. in Crores)
The West Bengal Small Industries Corpn.	β_1	β_1	α_1	α_1	α_1	β_1	0	Must Improve		
Eastern Distilleries & Chem Ltd.	β_1	α_1	α_1	α_1	α_1	β_1	0.4	Scope for Improvement		
Webfil Ltd.	α_1	α_1	β_1	α_1	α_1	β_1	0.2	Scope for improvement		
Durgapur Chemicals Ltd.	β_2	β_1	β_1	α_1	β_2	β_1	-1.2	Coma State	162.69	14.05
National Iron & Steel Co. Ltd.	β_1	β_1	β_1	α_1	β_2	β_1	-1	Coma State	68.92	1.25
Neo Pipes & Tubes Co. Ltd.	β_1	β_2	β_1	α_1	β_2	β_1	-1.2	Coma State	21.69	1.24
Saraswaty Press Ltd.	α_2	α_1	β_1	α_1	β_2	β_1	0.8	Good		
The Electromedical & Allied Industries Ltd.	α_1	α_1	β_1	α_1	α_1	β_1	-0.4	Requires Life saving Medicines	12.74	6.84
Kalyani Spinning Mills Ltd.	β_1	β_1	α_1	α_1	β_1	β_1	-0.4	Requires Life saving Medicines	95.6	25.45
Shalimar Works Ltd.	β_1	β_1	β_1	β_1	β_1	β_1	-1.2	Coma State Requires	70.46	7.94
West Bengal Chemical Indus-tries Ltd.	β_1	β_1	β_1	α_1	β_1	β_1	-0.8	Life saving Medicine	7.6	1.97
Britannia Engineering Prod-ucts & Services Ltd.	β_1	β_2	β_1	β_1	β_1	β_1	-1.4	Coma State	19.83	2.01

All the government companies as above have shown negative performance in all the 6 parameters chosen for final analysis. Profitability, asset utilization, contribution to exchequer, substantial erosion of net worth are the areas leading to the conclusion of *"Nursing on emergency basis"* .

2) Administered Life-saving Medicines

This recommendation is given to the government companies which have fared badly on almost all counts and have shown signs of deterioration over the recent few years. Following is the specific explanation for government companies recommended for providing *"Life saving medicines".*

Government companies recommended for providing life-saving medicines :

a) The Kalyani Spinning Mills Ltd.

This government company has shown marginally acceptable asset utilisation and some contribution to exchequer, but has fared poorly on the profitability front, shown no value addition to cover its wages bill, negative net worth and presence of implied subsidy.

b) Electro Medical & Allied Industries Ltd.

Though this government company has fared marginally satisfactorily on the profitability front (i.e. PBDIT) and shown some gross value addition to cover their wage bill, its poor performance in the areas such as Asset Utilisation, Contribution to Exchequer, Net Worth and Implied Subsidy lead to the conclusion of *"Providing life-saving medicines".*

c) West Bengal Chemical Industries Ltd.

Except some marginal contribution to exchequer by way of indirect taxes, the abovementioned government company has fared poorly on the most of the parameters. They showed negative PBDIT, no value addition to cover the wage bill, poor asset utilisation, negative net worth and increasing implied subsidy.

3) Must Improve

Government companies having marginal contribution in some areas and negative contribution in some other areas are classified under this category. Also some government companies on the basis of their score qualified themselves for 'Nursing' and for 'Providing life saving medicine'. However, looking at its basic nature of activity we have preferred labelling one of the government companies

into the category *"Must Improve"*.

Individual case is discussed below :

West Bengal Small Industries Corporation

Satisfactory asset utilisation, presence of contribution to exchequer and positive net worth were the stray points in front of the government company. It needs to improve its operational profitability (PBDIT), gross value addition per rupee wages paid and reduce its implied subsidy content.

4) Scope for Improvement

The government companies which have fared okay when judged in overall context but still have some pockets in their performance which appear to be weak, have been classified under the category of 'Scope for Improvement'. The government companies under this category are :

i) Webfil Ltd.

ii) Eastern Distilleries & Chemicals Ltd.

Both these government companies have performed fairly satisfactorily in the areas of profitability, value addition to cover its wage bill and have shown positive net worth. An example showing companywise detailed analysis for Eastern Distilleries & Chemicals Ltd. is shown in Annexure I. For the sake of volume, similar analyses for other companies are not exhibited.

However, there is scope for further improvement for these government companies in the areas of asset utilisation and reduction in the content of Implied Subsidy.

Improving their asset utilisation pertinently could directly lead to a reduction in implied subsidy provided that while doing so (i.e. increasing asset utilisation) no additional cost is increased.

5) Good :

The only government company, the Saraswati Press Ltd. is considered as 'good' in respect of all of the 5 parameters as below :

i) Efficiency in operations

Performance of the government company on the basis of efficiency in operations is evaluated as under. :

Growth in Sales :

The total income (Sales + other income) of the manufacturing sector of government companies in West Bengal has grown steadily from Rs. 141.9477 crores in 1987-88 to Rs. 264.83 crores in 1995 - 96 but has shown a decline to Rs. 214.09 crores in 1996-97. Out of this, the selected Government companies under study have occupied a major portion, which was Rs. 44.8924 crores in 1987-88 and increased to Rs. 92.21 crores in 1995-96 and again showed a decline to Rs. 52.69 crores in 1996-97. The figures are actuals and not adjusted to inflation.

Asset Utilization :

Asset utilization in the manufacturing government companies has remained in the range of 0.10 to 0.46 . This cannot be considered satisfactory. In fact, asset utilization was Rs. 0.14 crore in 1987-88, but dropped to Rs. 0.10 crore by 1992-93. Again it got increased to Rs. 0.38 crore in 1996-97. Industry thumb rule for total asset utilization can be considered at 2.5 to 3. When compared to this the utilization of assets of the government company has to be categorized as very poor. In case of the government companies selected for study the trend is also the same which varies from Rs. 0.48 crores to Rs. 1.05 crores. However this is also much less than the industry thumb rule.

It may be mentioned that asset utilization refers to utilization of recorded assets of the company which is presented in terms of money. On the other hand capacity utilization is used in a wider sense viz,. production of goods and services depending on utilization of the company's resources on which utilization of assets is one of them and it is presented in terms of percentage.

Gross value added per rupee of wages paid :

Gross Value Added per rupee of wages paid indicates the extent to which government companies are in a position to cover the cost of labour and further contribute towards other fixed costs like interest and depreciation.

The government companies in manufacturing sector of West Bengal on the whole have shown a modest gross value addition ranging between Rs. 0.51 to 3.67 crores. The thumb rule for satisfactory GVA per rupee wages paid would be 3 and above. Government companies selected for study have shown a trend of Rs. -0.92 to 0.0379 crores in this regard.

ii) Utilisation of Resources

Resource Generation & Contribution to Exchequer :

Following indicators have been considered for assessing resource generation:

Internal Resource Generation :

There has been no resource generation by government companies in manufacturing sector of West Bengal. In fact, Internal Resource Generation shows a negative trend throughout, indicating earning of cash losses.

Contribution To Exchequer :

Contribution to Exchequer is very marginal. Manufacturing sector of government companies, which contributed about 80% of the total contribution of government companies to the government treasury, showed an increasing trend as evident from the figures of Rs. 2.1804 crores in 1987 - 88 to Rs. 31.5984 crores in 1992-93. But the trend was reversed after 1992-93 and it became Rs. 5.71 crores in 1996-97. In case of government companies selected for study, the trend has always been increasing, as it was Rs. 1.8374 crores in 1887-88 and increased to Rs. 29.6 crores in 1996-97.

Capital Employed (Tangible Assets) :

Total Capital Employed (Tangible Assets) had increased from Rs. 352.1215 crores in 1987-88 to Rs. 2819.005 crores in 1994-95, but after 1994-95 it showed a decreasing trend which culminated in 1996-97 at Rs. 553.71 crores. The government companies selected for study also revealed the same trend.

iii) Liquidity Analysis :

The LiquidityAnalysis of West Bengal government companies has been made using following parameters :

Current Ratio :

Current ratio of the government companies in manufacturing sector of West Bengal has remained in an acceptable range of 1.05 to 2.15. In case of government companies selected for study, it is well above the standard, ranging from 5.08 to 3.01, although it has a decreasing trend.

Net Working Capital :

The net working capital has an increasing trend of Rs. - 6.378 crores in 1987-88 to Rs. 129.26 crores in 1996-97. In case of government companies selected for study, it has an increasing trend from Rs.-12.90 crores in 1987-88 to Rs. 17.09 crores in 1995-96, but it has decreased to Rs. 12.89 crores in 1996-97.

iv) Profitability :

The profitability has been assessed at five levels, namely :

i) PBDIT
ii) PBIT
iii) PBDT
iv) PBT
v) PAT

PAT of the government companies has remained negative throughout decreasing from Rs. -37.90 crores in 1987-88 to Rs. -54.73 crores in 1996-97. In cases of government companies selected for study, the trend is reversed ranging from Rs.-18.919 crores in 1986-87 to Rs. -3.69 crores in 1996-97.

PBDIT has shown an increasing trend of Rs.-16.673 crores in 1987-88 to Rs. -10.8 crores in 1996-97. In cases of government companies selected for study the trend is the same ranging from Rs. 13.74 crores in 1987 -88 to Rs. -3.69 crores in 1996-97.

The following table depicts the trend of profitability in terms of PBIT and PBI in the selected Public Sector Undertakings in the manufacturing sector of West Bengal.

Table - 1.5
PBIT and PBT in Selected Government Companies
(Rs. in crores)

YEAR	PBIT (Rs)	PBT (Rs)	REMARKS
1987-88	-18.7918	-26.4058	Negative PBIT & PBT
1988-89	-16.5643	-25.4557	Negative PBIT & PBT
1989-90	-14.5742	-26.4703	Negative PBIT & PBT
1990-91	-17.7469	-15.6259	Negative PBIT & PBT
1991-92	-13.1718	-9.347	Negative PBIT & PBT
1992-93	-15.2328	-10.7158	Negative PBIT & PBT
1993-94	-12.922	-7.5607	Negative PBIT & PBT
1994-95	-10.5446	-7.03222	Negative PBIT & PBT
1995-96	-15.97	-13.13	Negative PBIT & PBT
1996-97	-5.92	-3.69	Negative PBIT & PBT

The trend of Profit after Tax, both in the PSUs in manufacturing sector of West Bengal and also in the government companies selected for study, had a decreasing trend from Rs. - 35.0935 crores in 1987-88 to Rs. -59.045 crores in 1995-96; however it was slightly up to Rs. -54.73 crores in 1996-97. In case of government companies selected for study, the trend was almost reversed where the PAT, although negative, increased from Rs. - 18.919 crores in 1986-87 to Rs. -3.69 crores in 1996-97.

vi)Total Implied Subsidy :

The total implied subsidy (the amount of cash, whether in the form of subsidy or as loan provided to the unit) of the PSU in manufacturing sector of West Bengal as well as of the government companies selected for study depicts that the total implied subsidy for the first case increased from Rs. 122 crores in 1985-86 to Rs. 467 crores by 1996-97. In case of government companies selected for study, it was increased from Rs. 25.95243 crores in 1987-88 to Rs. 39.974 crores by 1995-96 but it came down to Rs. 29.76 crores in 1996-97.

Conclusions & Recommendations

Based on the above criteria and on a whole lot of information available, many alternative actions such as mergers, privatization, capital restructuring, winding up, status quo, specific improvements, etc. are possible.

For instance, even where public investment is felt to be called for it need not always be a case of total ownership by the government; partial investment by the government, including even minority investment, could be considered. This would bring in some private shareholders and answerability to the shareholders, which will be salutary. Seeking private ownership would also subject the venture to the discipline of the capital market. Such arrangements may bring in the advantages of a more professional style of functioning, while at the same time there would be some degree of governmental influence. Further options available for disinvestments are :

In certain cases it may be necessary to sell the enterprise to a particular group of private sector parties; this would be the least desirable kind of disinvestments, but in certain cases there may be no alternative.

Secondly, in certain cases it may be possible to put shares on sale to the public and secure a fairly widespread ownership.

The third and the most desirable form of disinvestments would be to offer a part of the equity to the employees and secure their greater interest in and commitment to the enterprise in question.

Whether the disinvestments should be full or partial and to what extent the government should retain a part of the equity, would be a matter for case-by-case examination.

In order to give more focused recommendations, we feel that the above possibilities have to be supplemented by more updated status of the government companies with respect to market conditions, socio-economic commitments and realizable value of assets (wherever 'Coma' state is recommended) before the implementation of action suggested is done.

We have classified the recommendations into following five categories :

1. Nursing on priority basis,
2. To provide life-saving medicines,
3. Must improve,
4. Scope for improvement,
5. Satisfactorily performing government companies.

The total number of government companies recommended for closure comes to 8 units, which is 57.1% of total units under study in manufacturing sector alone.

Further 14% of total government companies bear sign of 'scope for improvement', while 7% could be termed as 'good' units.

We hope to receive more details of these government companies so as to incorporate comment on these government companies in the final report.

Suggestions For PUSs Classified As 'Must Improve' & 'Scope For Improvement '

Table 1.4 of this report lists out government companies which are classified in the categories of 'Must Improve' and 'Scope for Improvement' .

A number of steps are required to be taken to improve the performance. We have used six indicators to analyse the financial performance as shown in Table 1.4. If the weight of any of these indicators falls in the scale β_1 or β_2 this will indicate the area which needs improvement.

Name of the Company	Total Cumulative Score	Status	Recommendation
The West Bengal Small Industries Corporation	0.00	Satisfactory	Must Improve
Eastern Distilleris & Chemicals Ltd.	0.40	Satisfactory	Scope for Improvement
Webfil Ltd.	0.20	Satisfactory	Scope for Improvement
Durgapur Chemicals Ltd.	-1.20	Coma State	Must be given Intensive Care on an Emergency Basic
National Iron and Steel Co. Ltd.	-1.00	Coma State	
The Shalimar Works Ltd.	-1.20	Coma State	
Britania Engineering Products &Services Ltd.	-1.40	Coma State	
Neo Pipes and Tubes Company Ltd.	-1.20	Coma State	
Saraswaty Press Ltd.	0.80	Good	Scope for improvement
The Electro-Medical and Allied Industries Ltd.	-0.40	Ill Health	Provide Life Savings Medicine
The Kalyani Spinning Mills Ltd.	-0.40	Ill Health	
West Bengal Chemical Industries Ltd.	-0.80	Ill Health	

Negative scale in PBDIT, Net Worth and Implied Subsidy indicates that the government companies are not run to earn profits . 'Profit' improvement is therefore the area to be concentrated upon to effect improvement in performance. A combination of following steps will help improve profitability.

1. Increase in volume of business to cross break-even sales
2. Increase in prices to ensure that the same covers full costs
3. Reduction in costs, both'variable' as well as 'fixed' to earn profit at existing volumes or at existing prices

4. If interest and depreciation form substantial part of cost, consider selling of excess investment in assets like land, plant and machinery, factory and office buildings etc; this will reduce borrowings as well as reduce depreciation and interest costs.
5. If Gross Value Added per Rupee Wages Paid is on negative scale, reduction in wages cost by trimming work force and increasing productivity will improve the GVA. Increase in sales volume without increase in wages cost would also improve GVA.
6. If Asset Utilization is on negative scale it is an indication of existence of 'excess' capacity. This excess needs to be shed to bring asset utilization in line with financial parameters and to ensure adequate Return on Investment (ROI).

If the financial performance does not improve in spite of the above steps the government companies may be identified for continued influx of funds from State Government treasury to keep it running in public interest.

We have attempted to explore the possibilities of Amalgamations / Mergers within the state government companies for West Bengal (State).

In doing so our basic thrust has been only to bring together *"Common/ Similar"* activities carried out by government companies which have been classified either under the *'Good' or 'Scope for Improvement'* category.

The benefits of synergy, economies of scale and strategic alliance are very well exploited in the private sector. The government companies also should follow this strategy for more effectiveness. Some of the government companies classified under 'Coma State' also have been considered as candidates for Merger wherever there is *prima facie,* a good possibility of making use of the infrastructural facilities of such government companies.

Limitations of The Study

1. Data collection for the study was constrained by the expected willingness of the executive of the sample units to part with information. Data collected from personal interview suffered sometimes from absence of all desired detail and cohesion in the replies given.

2. The study is based on a small sample of twelve companies and therefore statistical bias is not ruled out.

3. Conclusions reached in respect of the sample units after taking into account the uniqueness of each unit, might vary and many not be applicable to the industry in general.

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Annexure

EASTERN DISTILLERIES AND CHEMICALS LTD (Contd.) Rs. in Crores

	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
1. Total Capital Employed (Tangible Assets) (Rs.)	1.4187	1.4575	1.7574	3.3951	3.5646	4.5725	0	0	0	0
2. Total Gross Margin (Rs.)	0.0547	0.0716	0.171	-0.0222	-0.2322	0.2005	0	0	0	0
3. Total Current Liability(Rs.)	1.2651	1.3096	1.5455	3.0977	2.9982	3.6302	0	0	0	0
4. Total Current Liability(Rs.)	0.8249	0.7361	0.9588	1.1539	1.5622	2.1204	0	0	0	0
5. Total Net Working Capital(Rs.)	0.4402	0.5735	0.5667	1.9438	1.436	1.5098	0	0	0	0
6. Total Sales and Other Income(Rs.)	2.2557	3.2935	3.6152	3.6867	4.1719	4.9703	0	0	0	0
7. Total Assets (Rs.)	1.8274	2.0919	2.7586	4.7453	5.5341	6.8077	0	0	0	0
8. Total Employment	0	0	0	0	0	0	0	0	0	0
9. Total Wages and Salaries paid out(Rs.)	0.6181	0.9625	0.9057	0.8867	0.9683	1.0466	0	0	0	0
10. Capital/Labour Paid out Ratio	2.29626	1.514286	1.940378	3.828916	3.681297	4.368891	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11. PBDIT (Rs.)	0.0547	0.0716	0.171	-0.0222	-0.2322	0.2005	0	0	0	0
12. PBT (Rs.)	-0.038	-0.044	-0.3544	-0.3263	-0.6627	-0.2712	0	0	0	0
13. PBDT (Rs.)	-0.0198	-0.0253	-0.3297	-0.2874	-0.6288	-0.2271	0	0	0	0
14. PAT (Rs.)	-0.038	-0.044	-0.3544	-0.3263	-0.6627	-0.2712	0	0	0	0
15. PBIT (Rs.)	0.0385	0.0529	0.1463	-0.0611	-0.2661	0.1564	0	0	0	0
16. Total Dividend Paid Out	0	0	0	0	0	0	0	0	0	0
17. Current Ratio	1.53364	1.779106	1.611911	2.684548	1.919216	1.712035	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18. Debt Equity Ratio	3.471969	2.481354	1.899651	2.88089	2.085787	2.166036	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19. Sales to Total Assets	1.589977	2.259691	2.05713	1.08588	1.17037	10086998	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20. Working Capital Turnover Ratio	5.124262	5.742807	6.161923	1.890646	2.905323	3.292025	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
21. Net Fixed Assts. Ratio	14.71429	29.36383	20.52924	14.41243	17.79821	13.46965	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
22. Total Gross Value Added (Rs.)	0.6728	1.0341	1.0767	0.8645	0.7361	1.2471	0	0	0	0
23. Gross Value Added per Rupee Wages Paid	1.088497	1.07439	1.188804	0.974963	0.760196	1.191573	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Annexure

EASTERN DISTILLERIES AND CHEMICALS LTD (CONTINUED)

	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
24. Return on Total Assets	0.019974	0.025288	-0.07094	-0.01288	-0.04808	0.022974	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0
25. Return on Equity	0.19	0.22	1.772	1.6315	3.3135	1.359398	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0
26. Return on Capital Em ployed	0.025728	0.036295	-0.11136	-0.018	-0.07465	0.034204	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0
27. Growth in Equity from Plough Back of Earning	0	0	0	0	0	0	-0.03827	#DIV/0!	#DIV/0!	#DIV/0
28. Gross Profit Ratio	0.02425	0.02174	0.0473	-0.00602	-0.05566	0.04034	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0
29. Net Profit Ratio	-0.01685	-0.01336	-0.09803	-0.08851	-0.15885	-0.05456	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0
30. Return on Capital	-0.19	-0.22	-1.772	-1.6315	-3.3135	-1.356				
31. Total Resource Generation (Rs.)	0.028477	0.040892	-0.10988	-0.01685	-0.07238	0.03976	-0.05996	-0.13402	-0.28396	-0.59639
32. Total Borrowing (Rs.)	0.7246	1.0779	1.522	3.3136	3.6908	4.4094	0	0	0	0
33. Net Worth-intangible Assets	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1995	0	0	0	0
34. PAT + Interest(Rs.)	0.0365	0.0529	-0.1957	-0.0611	-0.2661	0.1564	0	0	0	0
35. Increase in Reserves and Surplus (Rs.)	0	0	0	0	0	0	-0.0779	0	0	0
36. Net Worth (Rs.)	0.2087	0.4344	0.8012	1.1502	1.7695	2.0357	0	0	0	0
37. Equity +Pref. Capital(Rs.)	0.2	0.2	0.2	0.2	0.2	0.2	0	0	0	0
38. PBT + Interest + Indirect Tax + Excise(Rs.)	0.0404	0.0596	-0.1931	-0.0572	-0.258	0.1645	0	0	0	0
39. Gross Value Added per Employee (Rs.)	#DIV/0!	#DIV/0!	#DIV/0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0
40. Proportion of Earning Ploughed Back	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0
41. Profit Ratained (Rs.)	0	0	0	0	0	0	0	0	0	0
42. Internal Resource Generation (Rs.)	0.025728	0.036295	0.083248	-0.018	-0.07465	0.034204	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0
43. Total Implied Subsidy (Rs.)	0.061485	0.068985	0.371385	0.329085	0.670485	0.268785	0	0	0	0
44. Cash Loss(Rs.)	0.0198	0.253	0.3297	0.2874	0.6288	0.2271	0	0	0	0
45. Total Interest (Rs.)	0.0745	0.0969	0.1587	0.2652	0.3966	0.4276	0	0	0	0
46. Gross Fixed Assets (Rs.)	0.5308	0.5084	0.597	0.7156	0.7281	0.9068	0	0	0	0
47. Return on Gross Fixed Assets	-0.0373	-0.04976	-0.55226	-0.40162	-0.86362	-0.25044	#DIV/0!	#DIV/0	#DIV/0	#DIV/0

Annexure

EASTERN DISTILLERIES AND CHEMICALS LTD

	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
48. Contribution to Exchequer (Rs.)	0.0039	0.0067	0.0026	0.0039	0.0081	0.0081	0	0	0	0
49. Ratios for Multiple Dis criminant Analysis—Total Net Working Capital / Total Assets (A)	0.2409	0.2741	0.2054	0.4096	0.2595	0.2218	0	0	0	0
50. Ratios for Multiple Dis criminant Analysis Retained Earnings / Total Assets	0	0	0	0	0	0	0	0	0	0
51. Ratios for Multiple Dis criminant Analysis- PBT/ Total Assets	0.0211	0.0252	0.053	-0.0129	-0.0481	0.023	0	0	0	0