PUBLIC SECTOR TELECOM COMPANIES UNDER TELECOM REFORMS: PAST PERFORMANCE AND FUTURE PROSPECTS

P. Rameshan

Analysis of this study has been done in the background of the telecom and other reforms initiated in India since 1991. The study attempts to evaluate the financial and operational performance of the three public sector telecom companies TCIL, MTNL and VSNL during the reform period up to 1997-98. The evaluation is based on certain selected parameters. The basic objective is to see how far the reforms have affected their performance favourably or unfavourably. It appears from the analysis that the various performance parameters of these companies have been affected in both ways and that these companies have not exhibited any consistency in their performance after 1990-91. The implication of this may be as follows. The operations of these companies may already be getting affected by their post-reform environment, in which competition is only potential or marginal. In the coming days when competition in the telecom sector becomes real and intensive, it may be essential for them to improve their service quality, cost-effectiveness and customer responsiveness in order to remain competitive and stable in performance.

TELECOM REFORMS

Ever since the economic reforms were initiated in India in July 1991, the Indian telecom sector has seen some important changes. At first, the telecom equipment industry was opened for private participation. This resulted in advanced technologies from multinational companies entering the Indian market and in making technologically-advanced telecom instruments domestically available at possibly lower prices. Secondly, the government had been effecting substantial across-the-board reductions in import duties as part of liberalization. The duty cuts, in turn, benefited most of the items being imported to India including the electronics and telecom-related equipment. The duty cuts along with the private participation and foreign entry in telecom manufacturing should have given the

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telecom operators scope for lowering the network and service costs and for improving the service quality.

The government also resorted to the privatization of telecom services This was done in two ways. First, telecommunications service industry got de-nationalized whereby the state monopoly in providing the service ended Second, the government disinvested its ownership to a significant extent in the public sector telecom companies, *viz.*, the Mahanagar Telephone Nigam Limited (MTNL) and the Videsh Sanchar Nigam Limited (VSNL). Further, the government allowed private sector companies to compete with the public sector service providers, *viz.*, MTNL and the Department of Telecommunications (DoT), in selected services, thereby, ending the public sector monopoly in telecom.

The government also set up the Telecom Regulatory Authority of India (TRAI) in its effort to monitor and guide private sector telecom operations and to ensure a healthy expansion of the telecommunications services sector. TRAI was also assigned the function of setting telecom tariffs. In setting the tariffs, the consideration of TRAI would be the larger interests of the telecom operators (including the private ones) and the consumers, and not simply that of DoT and MTNL alone. So, there will be increasingly limited room for the public sector players to shield their costs of any inefficiencies through higher tariff in the coming days. The government further declared its willingness to involve TRAI as an arbitrator even in its disputes with the private sector operators thereby submitting DoT, MTNL, etc., to TRAI rulings. Moreover, the government stated its intention to separate the functions of policy formulation and regulation from providing the service For this, it decided first to set up a Department of Telecom Services for looking after providing services and then to make it a corporation in the near future (for more details on the telecom reforms, see *Probity Sector Report*, 1999). Once DoT is made an independent commercial entity, its continued moral and other support may not be certain for MTNL, VSNL or other public sector telecom entities.

The further changes in the telecom environment in India may be in tune with the course outlined in the National Telecom Policy 1999 that was announced recently (*Telematics India*, 1999). The philosophy of the subsequent governments and the future global changes may also play their roles

Initially, the government effort to help the private sector in providing telecom services did not go smoothly. This was due to various loopholes in the bidding part of the privatization procedure. There were also problems

for the Indian companies in finding foreign partners as part of the bidding conditions. Indian companies faced constraints on the resource front and they were not prepared to wait for long gestation periods. So, even after awarding licenses for providing the basic and value-added services to private operators in different telecom circles, there arose several disputes between DoT and the operators. The main irritant was the high license fee charged by DoT although the private operators themselves were responsible for quoting such high license fees. Subsequently, the government has decided to agree to a revenue sharing formula to be applied to new entrants. Existing license holders would also graduate from paying license fees to revenue sharing subject to certain conditions.

Some of the problems faced while carrying out the privatization process in Indian telecom can be attributed to poor planning in this respect by the government of India and to the political connections of the privatization process. There is also criticism of the government's objective of raising maximum revenue, with a large component of a monopoly rent, from the private operators at the cost of consumers. Earlier, the Korean and Singapore experiences have shown how easy it is to develop the telecom sector and privatize it if the government moved in a well-planned and business-minded manner (Kim *et al.*, 1992; Sikorski, 1998).

There are already two private operators providing basic telephone services in two of the circles. One of them is operating in the Maharashtra circle that covers Bombay as well. The public sector company, MTNL, is already in operation there since 1986. Obviously, the private sector operator, Hughes Ispat, is to compete with MTNL in Bombay. In the value-added services front, there are many private players offering different types of services in the metros of Bombay and Delhi as elsewhere. Since MTNL is operating with such services in these cities, it is definitely to face competition from those entities. Besides, the growth of call back services is leading to revenue losses to MTNL (& DoT) since the revenue base is shifting to foreign countries whenever domestic calls originate abroad. Further, the Internet is getting popular very fast and the Internet telephony is emerging as a disruptive technology that could upset the fortunes of the conventional telecom services provided by MTNL, etc. This, along with the setting up of international Internet gateways by private Internet service providers (ISP), is likely to have an impact on VSNL that provides both Internet services and the gateways to Internet and international telecom services. It is in view of such threats that these companies go for strengthening their pres-

ence in new services including Internet facilities.

As for VSNL, the international trend of declining tariff on telecom services should have a favourable effect. Because, the rates are likely to come down in India too and this would lead to increased traffic. A major part of the revenues of VSNL that is derived from international telephone calls is directly proportional to the total number of call minutes. However, the continuous international pressure to lower the settlement rates may affect its revenues in future especially given the uncertainty on the likely attitude of DoT when it would be made a corporation. Moreover, the government may not be averse to opening international telecom services for private participation in the near future although it can wait till 2004. This is in line with its obligations under the General Agreement on Trade in Services (GATS), which is going to change the global environment in service business. To meet this challenge, there is need for fresh strategy to the company (see also Sinha, 1999).

There are three public sector undertakings (PSUs) that are in telecom business. The cases of MTNL and VSNL are already mentioned. The third one is the Telecommunications Consultants India Limited (TCIL). TCIL is providing consulting services to both domestic and overseas clients. It has been more active abroad. The telecom reforms carried out in India after 1991 have not directly affected TCIL. The government has also not disinvested its ownership in this company. However, the company has taken advantage of the changed government attitude to public sector employment and has reduced the labour force considerably. Also, the global changes in the economic sphere in general and telecom in particular should have a bearing on the company. Besides, with liberalization in progress everywhere in the world, the company should have more opportunities as well as threats from other international players. Thus, the company has an important stake indirectly in the telecom reforms that are in progress in India and elsewhere.

There are certain other factors that generally affect public sector firms but which have special relevance to MTNL and VSNL. The government budgetary support has been declining over the years to public enterprises in general. So, the companies have to find their own resources. This is, however, not a problem for the telecom firms given their huge profits. These companies have, in fact, an advantage. That is, in the new environment of liberal financial market access, it is very easy for highly profitable companies like MTNL and VSNL to find investment resources. Their partial

privatization has only helped their cause. These companies have already put efforts to tap the financial markets (for a brief discussion on telecom financing, see Saxena, 1997). This should have a bearing on their financial structure.

In short, the public sector telecom companies during the 1990s have been subject to various changes—some of these were favourable while others were unfavourable. The favourable changes (e.g., advanced cost effective equipment ensuring better quality, scope for newer services, opportunities for capital market access, etc.) might have affected their financial and operational performance positively. The financial and operational impact of the unfavourable changes (such as actual and potential competition, loss of control on tariff-setting, growth of call back services, emergence of Internet telephony and changes in global environment of service business) could have been partially offsetting the positive effects. The fact that the companies continued to show good profits suggests that the negative effects did not completely offset the strong points of these companies. Still, the impact of those negative and positive effects may have been felt differently on different financial and operational parameters of these companies. As a matter of fact, in an earlier analysis this author had found that in the first three years of economic reforms when telecom reforms were just begun, MTNL and VSNL did not show consistency in their financial performance (Rameshan, 1996). In this light, we attempted in this paper to see the behaviour of different selected financial and operational parameters of TCIL, MTNL and VSNL during a longer period. For this, we focus on the period between 1985-86 and 1997-98.

Remaining part of this paper is divided into four parts. In the next part, we discuss briefly the background of the three companies. The methodological issues are discussed in part III. Part IV would deal with the results, their interpretation and the policy implications. The last part visualizes some future scenario of the three companies.

BACKGROUND OF THE COMPANIES

The companies TCIL, MTNL and VSNL have been set up with specific mandates. Among these companies, TCIL has the least direct operational linkage with the others since its realm of activity includes only telecom consulting and not telecom services. The linkage between MTNL and VSNL arises from the fact that both depend on the infrastructure provided by DoT

while VSNL is dependent on the MTNL infrastructure too. Below we discuss some more details of the background of each of these companies.

(a) TCIL

TCIL was established in 1978, with a very moderate capital base, to look after the consulting requirements of the telecom sector. It had a mandate to provide its services in India as well as abroad. Within India its main clients used to be the telecom department of the Government of India at the beginning. This was because, the telecom services were a state monopoly and private players were non-existent. Only other possible domestic clients could be the railways and a few public sector corporate giants that had their own captive communication network. Later, when MTNL and VSNL were incorporated, they also could become its clients.

TCIL has been very successful in its mission. It has undertaken telecommunications consulting projects in a large number of Third World and other countries. It has offices in several countries and at several places in India. It has increased its consulting income continuously and significantly over the years. Profits have also been on the rise. TCIL has been transferring a rising part of its profits as dividends to the government.

(b) MTNL

MTNL was established in 1986 as a corporation with a mandate to serve the metropolitan regions of Bombay and Delhi and with a large capital base A firm designed to provide telecom services needed a large capital base because of the huge fixed capital requirements of the services. The main objectives of setting up MTNL included upgrading of service quality, expansion of telecom network, providing of increased telecom access, providing of new services, and raising of financial resources for telecom development in the country (*The India Infrastructure Report*, 1996).

MTNL has produced highly commendable results over the years. The tele-density of India as a whole is below two whereas it is above ten for Bombay and Delhi where MTNL serves. When MTNL was formed in 1986, the average waiting time for a phone was about 18 years in Bombay and Delhi. Now the waiting time is almost zero and in most cases telephone connection is available on demand. The company is providing several value-added services to its corporate and non-corporate clients. It also gives many

special services like Wireless in Local Loop, Smart Payphone, Datacom, Inet, PABX, etc.

Revenue of the company has grown manifold since its inception. MTNL is among not only the largest public sector companies, but also largest corporations in the country. Among the public sector companies, it has one of the highest sales turnover and profits. The company has also registered larger growth in employment after 1990-91 than till then. The importance that the government assigned to MTNL was clear when it was proclaimed as one of the *navaratnas*. This status acquired through its performance enabled it to get to its shares a good reception in the share market. It was also easy for the company to procure debt capital from the financial markets when required.

(c) VSNL

VSNL was also incorporated in 1986. At the beginning, it had a government share capital base of Rs.60 crores. The basic objective of establishing VSNL was to create an entity to provide telecom services requiring international access. VSNL has monopoly in this function. It completely controls the international telecom gateways of India. As per original design, VSNL is to have such monopoly rights till 2004.

VSNL has been providing in addition to international telephone services such other basic services as telex, fax and telegraph. It also provides a range of value-added services like electronic data interchange, video conferencing, Internet access service, television relay service and mobile services. Further, it has facilities for Gateway Packet Switching System, Gateway Electronic Mail services, Inmarsat Mobile services, Gateway Network System and High & Low Speed leased lines. The company is active with its expansion plans for investment in satellites, undersea cables and transmission and switching equipment.

The company has been a very good performer among the public sector enterprises over the years. The company is also described as one of the *navaratnas*. In fact, ever since the Memorandum of Understanding was made a regular feature of most profitable public enterprises in 1993-94, the performance of VSNL has always been rated as "excellent" (*Public Enterprises Survey*, 1997-98). The income and profits of the company have been growing significantly since its inception. Both its tax and dividend payments have shown continuous increases in every year since 1993-94. In

recognition of its performance, the stock market has accepted its shares with applause. Given the profile of VSNL, it would not have been difficult to raise finances if needed for its expansion from the domestic or foreign capital markets.

METHODOLOGY

The objective of the analysis in this paper is to evaluate the financial and operational performance of TCIL, MTNL and VSNL in the light of the possible impact of telecom and other reforms on them. To recapitulate, reforms have the following repercussions in general for especially MTNL and VSNL:

(a) Entry of private sector into manufacturing of telecom equipment that resulted in the domestic availability of advanced telecom equipment;
(b) Across-the-board cuts in import duties of various items including electronics and telecom related items;
[Item (a) and (b) together should reduce the network and service costs as well as should improve the quality of service in telecom]
(c) Privatization of basic and value-added telecom services that ended public sector monopoly in telecom services;
(d) Actual and/or potential competition to existing public sector service providers in telecom as well as Internet services; and
(e) Loss of control over fixation of telecom tariff that limited the ability to cover costs of inefficiencies through fixing higher tariff;

These are in addition to the economic reform implications relating to capital market access and opportunities for global operations.

Our objective in this study in the light of the above discussion is to examine the financial and operational performance of the three PSUs during the 1990s. We feel that a specific temporal pattern, i.e., sustained improvement or deterioration cannot be expected in their performance for a couple of reasons. First, the implementation of various measures of telecom and other reforms has not been done within the initial few years or with any specific temporal pattern. And, second, the ability of each reform measure to affect the companies has not been unique, rather, its impact depended on the companies' ability at each point of time to take appropriate remedial strategies. Hence, we may encounter frequent fluctuations in their perfor-

mance. While our major task here would be to identify a basic trend, if any, in each of their performance over the years, the comments made here need to be treated as tentative and not final given that this study is based on a selected set of ratios.

We list below ten financial and operational aspects of the three companies that, the author expects, are likely to be most affected by the telecom and other reforms. We also propose the likely connection of these aspects to various reform measures:

(1) *Return and profitability*: Financial reforms are likely to affect the capital structure and cost of capital. Disinvestment is likely to generate stock market pressures to perform better and to be cost-efficient. Competition is likely to affect customer base and revenues, cost of marketing, etc. Public sector employment reforms are likely to reduce labour costs and improve productivity.

(2) *Stockholders' income*: Disinvestment is likely to lead to greater dividend pay-out. Capital market reforms are likely to affect capital structure and interest payments. Public sector employment reforms are likely to affect the labour payments. Changes in business priorities are likely to affect labour size and capital structure.

(3) *Efficiency and productivity (covering efficiency in cost and credit sales management and turnover)*: Privatization of telecom equipment manufacturing and import duty cuts are likely to reduce costs and improve quality of service. PSC reforms are likely to affect efficiency and productivity given the elements of MOU and staff reduction. Disinvestment is likely to affect efficiency through stock market pressure. Competition is likely to affect efficiency and productivity given the pressures to modify strategies to ensure a stable performance.

(4) *Liquidity position*: Financial reforms are likely to affect credit availability and liquidity structure. Disinvestment is likely to affect cash position through dividend outflow and reduced retention. Competition is likely to affect revenue collection and credit sales position.

(5) *Capital structure*: Disinvestment affected the government equity and is likely to affect net worth due to dividend pay-outs and reduced retention. Financial reforms are likely to affect the debt component especially market-related. Public sector reforms like MOU provided more freedom to take financial decisions. Reduced government support necessitates increasing access of market funds.

(6) *Social responsibility (including tax contribution, value addition, income disbursal and retention of profit for internal resources)*: Tax reforms reduced direct and indirect tax rates and is likely to reduce tax payments. Efficiency measures like competition and access to advanced equipment are likely to increase value addition. PSC employment reforms are likely to reduce staff and wage bill. Disinvestment and dividend expectations are likely to increase dividend outflow and reduce internal resources.

(7) *Foreign dependence in respect of loans, earnings, and spending*: Foreign capital market access is likely to increase procurement of foreign funds. Globalization is likely to create a more favourable attitude to foreign equipment, tie-ups and funds. Competition is likely to prompt the introduction of new services having international connection. Privatization of telecom equipment industry and import duty cuts are likely to increase the use of foreign equipment.

Besides these seven aspects, employment level is also likely to be affected due to the reforms related to the labour downsizing in PSUs. The disinvestment factor, wherever it appears, is not applicable to TCIL. Based on the expectation of the above aspects, we proceed in the next section to analyze their behaviour since 1991-92 as compared to the behaviour earlier.

To facilitate such an analysis, we use the method of ratio analysis. We use in all 55 different ratios under the seven aspects mentioned above. The break-up of ratios according to these aspects is given in Table-1.

In analyzing the performance of our sample PSUs, we attempt to see the direction of movements of various ratios over the years since 1991-92. We compare this with the movements in the pre-1991-92 period. Within the reform period, we also make comparison for two sub-periods, 1991-92,1993-94 and 1994-95, 1997-98. First of these sub-periods witnessed general economic reforms like de-regulation, import liberalization, privatization of different sectors (including telecom equipment), disinvestment, etc., along with certain PSU specific reforms such as those related to employment and MOU. The latter sub-period experienced the telecom reforms beginning with the licensing of private cellular and certain other value added services and basic services in certain circles. Thus, we get a comparative picture of the companies' performance corresponding to these two events with the impact of the last event being supposedly more pervasive on the telecom PSUs.

For evaluating the performance based on our selected ratios, we construct a frequency table (values expressed in percentage) for each company based on the direction of movement of its actual computed values of different ratios over each year in the given period. To illustrate the method, consider the group of ratios "return & profitability ratios" appearing in Table-1. This group has twelve ratios. First, we have the period 1985-86 to 1990-91. When we move from 1985-86 to 1986-87, certain ratios are rising, a few others falling and the rest remaining stable. Similar observations can be made as we move to subsequent years in that period. In that way, for the entire six years, direction of changes can be observed for five years. Now, if we add for all five years the number of times any of the 12 ratios increase, fall or remain stable, we get a frequency number of direction of movement of the group of ratios during the given period.

We have a total frequency value for each of the group of ratios for the given period. That can be obtained as number of ratios in the group multiplied by number of change-years in the given period (12 x 5 = 60 for this group of ratios and period). Total frequencies of all groups of ratios for each of the sub-periods are given in Table-4.

Let us now express the observed frequency of the given group for the given period on the group's movement toward, "increase," "fall" or "remaining stable" as percentages of total frequency of this group for the relevant period. This gives us an idea of how often the ratios of this group on an average increase, fall or remain stable during the given period. If the frequency per cent calculated for the "increase" is greater than 50 percent, it means, in the illustrative example, returns or profitability is generally rising during the period. If the observed frequency percent of the "fall" is greater than 50 percent, then falling profitability is dominating during that period. We can also work out the combined frequency percent of "either increasing or remaining stable." In this case too, interpretation will be similar to the above. In this way, the direction of movements of each of the groups of ratios for each period can be expressed as a frequency percent. Comparing these percentages over periods and across different groups of ratios or companies, we can make a comparative evaluation of the performance.

A priori, there should be movements in the groups of ratios in certain directions given the impact of various economic and telecom reforms on the operational and financial aspects of the three PSUs. The direction of movements expected in the light of the possible impact of various changes already mentioned is outlined, along with the probable causation factors, in

Table-3. Our actual results shall be evaluated in the light of these expectations.

Data required for this study have been taken from various issues of the Public Enterprises Survey. Monetary values used in the analysis are in current prices. Converting into constant price terms was not felt necessary since the analysis would be based essentially on ratios and not on absolute values of variables.

RESULTS AND DISCUSSION

Table-2 shows the comparative operational profile of the three public sector telecom companies studied here. As obvious from the table, MTNL is the largest among the three in terms of share capital and employment. All the three companies have experienced tremendous growth in their net sales revenue and gross profits after 1990-91. The performance of VSNL has been the most impressive in terms of net sales that catapulted it up above MTNL by 1997-98. On the employment side, TCIL became leaner by a significant proportion by 1997-98 while MTNL and VSNL showed increases in labour force during the same period at different rates.

Computed values of various groups of financial and operational ratios of the three companies are not reproduced here due to space constraints. It may, however, be worthwhile to mention here that even within each group or sub-group, as the case may be, different ratios sometimes moved in different directions in a given year and given period. So, it is a difficult task to interpret the direction of movements of these ratios independently over years and reach a reasonable conclusion for the given period. It is to solve this difficulty that we have constructed a frequency distribution table for each company based on the movement of individual ratios within given groups using the method proposed in the previous section. Subsequent analysis of this section shall be based mainly on this frequency distribution computed in percentage.

Tables 5-7 present the frequency percent of the observed direction of annual movement of the ratios of TCIL, MTNL and VSNL respectively. The observed direction of movements during 1991-92 to1997-98 may be compared to the expected direction of movements of various ratios during this period as given in Table-3. As Tables 5-7 reveal, profitability showed a generally declining tendency during the pre-reform years in all three PSUs, but it tended to be stable or increasing after 1990-91. However, the favourable

profit performance was confined only to the first three years in TCIL. In the second sub-period under reforms, profitability of TCIL generally fell significantly. This is surprising because, TCIL was neither subject to disinvestment nor affected by telecom reforms due to its greater international orientation and the consulting nature of its operations. Nonetheless, the international economic and political problems and the economic slowdown of the latter half of 1990s might have adversely affected TCIL's operations. In some of the years, profitability was affected also by a rapid increase in the total expenses of both TCIL and VSNL. Real astonishment is with MTNL. Since 1994-95 when telecom reforms began in the form of licenses to private basic and value-added service operators, MTNL was expected to have faced competition that did not exist earlier. Despite this, it has the best performance in profitability during this period.

Stockholders' income that includes both the interest and dividend earnings increased considerably in general in all the periods for TCIL. For MTNL and VSNL the stockholders' income ratios increased only under reforms though the performance was weaker than of TCIL. Moreover, for VSNL for the sub-period of 1994-95 to 1997-98, the income ratios actually tended to fall. The ratios should have increased given the disinvestment and the greater expectations of stock market and the government for higher dividends. Also, interest payments should have increased if the companies have taken advantage of the better borrowing possibilities under reforms. This is more so considering the declining government support to PSUs. Still, it was for TCIL that did not go for disinvestment that the tendency of stockholders' income to increase or remain stable appeared the strongest since 1994-95.

Among the efficiency and productivity ratios, the cost efficiency ratios showed a general tendency of improvement till 1990-91 only in case of MTNL. In the other two cases, it tended to worsen. Cost performance was almost similar across all the three companies since 1991-92. That is, cost-efficiency generally declined during the reforms despite some improvement in the first three years. This is contrary to our expectations set out in Table-3. Significantly, all the three PSCs showed a worsening cost profile since 1994-95. In the case of TCIL, the regular employment size came down half by the year 1997-98. Similarly, for VSNL this was despite some improvement in the labour-cost position. Cost-efficiency should have actually improved during this period due to the telecom reforms including privatization of telecom equipment manufacturing and the induction of competition in

various telecom services.

Debt-recovery ratios have generally tended to improve continuously for TCIL during the reforms although the improving tendency slowed down during the last sub-period. For MTNL and VSNL, however, there has been a decline in the credit sales profile during the reforms, thus, belying our expectations. Some improvement in the sundry debt position of VSNL in some of the years since 1994-95 did not help it to improve the overall situation. The improvement in TCIL could be due to two factors. One, the company's policy might have shifted from reliance on credit transactions to more on cash transactions. Validity of this point is in the context that TCIL is engaged in international consulting mostly among developing countries many of which have been experiencing political and economic turmoil and economic liberalization during the 1990s. It is, however, the second factor that is closer to truth. That is, TCIL has really improved its credit recovery management through a host of measures including hedging of its receivables. The company has taken special care to manage its dues from the African countries, the clients from where are more likely to default in comparison with other countries. For MTNL and VSNL, the situation might have arisen from their need to offer increased credit facilities to their old and new customers for containing the private competition on the telecom and Internet services.

Turnover and productivity ratios showed improvement, in tune with our expectations, for all the three PSUs throughout the study period. For MTNL and VSNL, the improvement under the reforms has been greater during 1994-95 to 1997-98. Whereas, during this period the improvement was lower in case of TCIL. This implies that asset utilization has improved in the first two companies faster when they coped with the newly initiated private competition. This may partly justify the efficiency argument of competition at least in the asset context although the same argument is not applicable to the operational cost context.

The liquidity ratios were generally stable or rising in MTNL and falling in the other two companies before 1991-92. At the same time, since 1991-92 for the entire period liquidity ratios generally fell in all the three companies, thus, going beyond our initial expectations. This may be construed as improvement in the utilization of various constituents of the current assets. However, such improvement occurred in MTNL in which the current ratio was quite high in 1991-92 only since 1994-95. Further, in VSNL in which values of the liquidity ratios were not very high in 1991-92, the liquidity

ratios tended to be stable or rising since 1994-95, thus, implying a strengthening liquidity position of the company.

The composition or structure of capital is changing in all the three companies throughout the study period. The changes are, however, not uniform in favour of debt capital. This is clear since the debt-equity ratio is behaving differently in the three companies in different periods. In TCIL, the debt-equity ratio was falling in both pre-reform and post-reform periods despite some increase in the first three years since 1991-92. It means that TCIL did not take advantage of the new financing opportunities thrown open by the financial sector reforms especially since 1994-95 in proportion to its net worth. The truth could also be that it really did not need much debt capital as it is a consulting firm and since it had retained profits or internal resources to meet its moderate capital requirements. For MTNL and VSNL, the sequence was reverse with some increase in the debt-equity ratio during the first sub-period under reforms and large declines thereafter. In fact, in the case of MTNL most of the government and foreign loans were retired and emphasis was laid mostly on internal resources generated. Thus, in none of the cases our expectation of a rising leverage ratio uniformly under reforms is justified.

Among the social responsibility ratios, the tax payment ratios did not behave similarly in the three companies. In the pre-reform period TCIL and VSNL had the tax ratios showing a general tendency to fall while in MTNL the ratios tended to rise or be stable during this period. During the reform period, the tax payments ratios generally fell in VSNL, but tended to rise or remain stable in TCIL except for the balancing between this and fall since 1994-95. On the other hand, in MTNL the tax ratios showed decline in all years since 1994-95 while it tended to rise or remain stable during 1991-92 to 1993-94 with the overall position for the post-reform period being a general tendency to fall. As outlined earlier, the general fall in the tax payment proportions of these PSCs may be attributed to the decline in the corporate tax rates in India since 1991-92 and to the various avenues of tax avoidance opened since then. What is important is that despite being PSUs, these enterprises could scale down their participation in the socio-economic development of the nation through their tax payments.

Value-added ratio is expected to have increased for all three companies since 1991-92 due to increased cost efficiency and other favourable factors arising from competition, etc. By Tables 5-7, value-added to net sales has been generally stable or rising for TCIL and MTNL before 1991-92, but

falling for VSNL. Since 1991-92 value-added ratio began to exhibit its generally declining tendency in TCIL as well with VSNL continuing to behave as earlier in this respect except for a reversal of trend in the first three years since 1991-92. In both these companies value-added ratio has actually been showing stability or increases in general during the first three years under reforms. It was since 1994-95 that the declining tendency became overwhelming. For MTNL, the pre-reform trend in value added continued to hold since 1991-92 too. However, by the second sub-period under reforms its position slightly worsened. Obviously, for all three firms the expected cost efficiency and other benefits of competition did not really show up in value added. Rather, frequent fluctuations in expenditures gave rise to unsatisfactory value-addition in several years, thus, causing costly social losses of scarce resources.

Income–disbursal ratio was showing a generally falling tendency throughout the study period with no reversal during the reforms in such trend. Only in MTNL there was a slight improvement in the situation since 1994-95 with a balance appearing between decline and stability or increase. The declining income disbursal ratio implies that the employees, shareholders and lenders of the three companies do not get over the years, even with all disinvestment, opening capital market and fluidity of labour market, an income share in proportion to the growing incomes of the respective companies. This is possibly because, first, non-labour costs may be rising faster, second, borrowings do not generally grow and so interest payments show mostly declines and, third, the pace of growth in dividends may be mostly off-set by slower growth or decline of the labour payment component of expenses.

The retention ratios are generally stable or increasing in MTNL and VSNL since 1991-92. The relevant frequency percentage is relatively higher during the last sub-period under reforms for both the companies. Earlier in the pre-reform period the situation had been almost reverse in both cases. It means in both companies there is increasing emphasis on profit retention that is important for self-financing of expansion plans. This is particularly so given the fiscal problems of the government and its weakening capital support to the PSUs in general. Further, VSNL had almost eliminated its reliance on loans and started depending more on internal resources and short-term credit. In the case of TCIL, the retention ratios were stable or rising to some extent till 1990-91. However, the retention ratios generally showed a strong declining tendency during 1994-95 to 1997-98 which resulted in the

ratios generally declining during the entire post-reform period despite a general increasing or stable trend during the first three years of reforms. It may be that the growing fiscal problems of the government has forced it to take out maximum dividends from profitable companies like TCIL that are not constrained much in resources given their nature of operations and moderate capital requirements for additional investment.

The foreign-loan and foreign-exchange earnings ratios are generally increasing in all the periods for all the three companies. In fact, foreign loans were absent in TCIL through out the period. And, in MTNL and VSNL, foreign loan component in the debt is negligible and fast declining especially after a couple of initial years of reforms. So, the stability or increase of foreign loan and earnings ratios shown by the frequency percentages is due to the stable or rising foreign exchange earnings proportion of the net sales of these three companies. This shows their continued or increasing dependence on foreigners for their income.

Foreign exchange spending ratio was declining in TCIL and balanced between decline and stability or rise in MTNL and VSNL in all pre-reform years. During the reforms in contrast, MTNL experienced a general increase or stability in foreign exchange spending in all the periods, since 1994-95 in particular. TCIL had its foreign exchange spending ratio largely stable or rising since 1994-95, thus, making it rise for the entire post-reform period despite a general fall during 1991-92 - 1993-94. The reverse of TCIL is observed in VSNL. The ratio generally fell since 1994-95 that made the ratio falling for the entire post-reform period despite a general rise during the first three years. For TCIL, the foreign exchange spending may be due to its foreign consulting operations. VSNL may have its foreign interconnection charges to be paid on its various international services. MTNL may have similar expenses to some extent. But the increase in the ratio despite declines in various international telecom charges may be arising from outgo on other purchases too. It is not clear whether the privatization of telecom equipment manufacturing and the subsequent inflow of foreign telecom technologies do not have any favourable impact on the foreign exchange spending requirements of these three PSUs.

FUTURE SCENARIO

The telecom and other reforms introduced in India since 1991 have led to several changes in the Indian telecom equipment and services sector as

mentioned in the earlier section of the paper. Those changes have presumably exercised their sway over the public sector telecom companies TCIL, MTNL and VSNL in different ways. The preceding section of this paper attempted to see how the performance of selected financial and operational parameters of these companies over the years got shaped up under the changes referred to in the first section. By our analysis, the three public sector telecom companies have not been consistent in their performance over the years since 1991-92.

VSNL is yet to face real competition except in providing Internet services. So, its performance variations may be attributed to fluctuations in international telecom traffic owing to business fluctuations or quality problems. At the same time, international economic and political changes and the shift of emphasis from turnkey to build, operate, and transfer (BOT) or build, operate, lease, and transfer (BOLT) type of projects may be affecting TCIL.

Below, we present some comments on the future prospects of the three companies. The bases of the comments are the author's judgement in the light of the telecom reforms, the financial results analyzed in the upcoming section, the current literature emanating on the future of telecom industry, and the author's informal discussions with the senior officials of various telecom entities. However, it needs to be emphasized that these comments would hardly be exhaustive.

FUTURE OF TCIL

Telecom reforms in India have provided fresh opportunities as well as threats to TCIL. On the positive side, it could have a wide range of customers from the private sector now. With the thrust of new economic policies on globalization, it can go global more vigorously than ever before. If the government is favourably disposed, TCIL can also go for private financial resources by diluting the government ownership. Given the present strength of the company, its shares may be well received by the public. It can also take advantage of the open financial markets in India and abroad if it has expansion plans suitable to the changing environment and needs financial resources.

However, the changing environment will also lead to increased competition and pressure to perform. Patronage from the government will no longer be there and the liberalizing, developing countries may be inclined more to consulting firms from developed countries and less to those from countries

like India. The new international clients are also shifting their focus from turnkey projects to BOT and BOLT type of projects. It is not that the company does not have the necessary technical capabilities to stay competitive and to perform under such pressing environment. It has such capabilities. However, its human resource capabilities may require a thorough overhauling. The company seems to be slow in adjusting its human capabilities to the changing needs. This is said to have the potential to become a stone around the neck (some of these concerns have already been expressed by the executives of TCIL). TCIL may also have to think of developing appropriate foreign connections in the form of tie-ups. It should, however, be done in such a way that it does not affect its control on its foreign operations and does not also endanger its future existence abroad.

MTNL PROSPECTS

In the changed telecom environment in India, MTNL is facing more threats than opportunities. Its opportunities arise from its strengths, i.e., its experience in providing various services over years and its size and position in the market. Major opportunities include the expansion in the telecom consumer base after reforms and the new avenues of expansion like Internet and electronic communication.

At the same time, threats arise mainly from the existing and potential competition as well as on the quality aspect. The issue of quality of service is already a talking point, e.g., in Delhi where the telephone fault rate is as high as 28 percent [*Telematics India*, 1999]. There are also problems associated with telephone billing. This is despite the company's attempt to improve billing. To improve bill collection the company has already arranged mobile collection centres. It is also planning to introduce bar coding on bills to reduce time spent by customers at the collection counter. Still, its customers do not seem happy.

The recent phenomenon of declining new registration for new telephone connections that has been observed in Delhi should be seen in this light. If potential telecom consumers are really disenchanted with MTNL and if their faith is not regained, the company will have a bleak future when full privatization leads to an oligopoly situation in future.

Even availability of cellular facilities may affect the basic business of MTNL. Cellular service is said to be cheaper when long distance calls are made. Installation charges are also lower for cellular facilities. Private op-

erators provide superior quality service too. So, some of the potential subscribers may be switching to that service. To pre-empt this or to minimize its impact, MTNL should reduce costs and increase productivity so that it can reduce installation and service charges without any further loss of time. Incidentally, MTNL has now scope for entering the cellular business, which it has recently started in New Delhi in a modest way.

Coming over to the aspect of competition, the private operators are already readying attractive packages for corporate clients, who contribute major part of MTNL revenues (e.g., Hughes Ispat has been trying this out in Bombay). As of now there is only a duopoly situation in telecom services even in circles where licenses have been issued to private operators. The government has, however, clear intention to allow more players into each circle so as to make it an oligopoly situation as done in the telecom sector in other countries that went for liberalization earlier. When competition gets intense in future, efficient private players may be able to eat into MTNL's existing customer base. Future competition can arise also from the progress in Internet telephony that may turn out to be a cheaper mode of communication in future. At present, Internet telephony is not permitted in India. The situation may change very soon. The company should, therefore, be prepared for this.

As a matter of fact, in providing Internet services, VSNL is one of the strong rivals of MTNL. It is, perhaps, to contain the threat from VSNL that MTNL recently announced some cuts in Internet charges to selected customer classes. This cut is, however, unlikely to give much advantage to the company since VSNL is quick in offering similar cuts in its own Internet charges. Success in future may depend to a greater extent on quality of service and in the ability of the company to offer continuously new facilities and products to the Internet users.

SCENARIO FOR VSNL

VSNL presently does not face any threat to its position in the international basic telecom services. That is because its monopoly in its basic operation should continue up to 2004. Further, it has possibilities of gaining from any positive impact of the present inclination of telecom services worldwide to reduce tariffs. International pressure on India to reduce its tariffs has already started. The international call rates are currently high in India because of the cross-subsidization given to the short distance users at the cost

of long distance subscribers. When the rates decline, the inverse tariff elasticity of telecom demand would lead to increased access rate thus leading to more revenue to VSNL. This positive effect will emerge without any qualifications because as per the existing arrangement, the DoT or MTNL (or any other party concerned) should pay Rs 10 to VSNL for every minute of international call originating from their subscribers. Therefore, the less the tariff, the more the call minutes and the more the revenue to VSNL. This arrangement can change in future. Because, when call charges are declining DoT, MTNL or other interconnecting party may not agree to pay same amount per minute as today. To what extent new call rates and revised share of VSNL decline below present levels would determine the impact on revenues of VSNL.

VSNL is already about to face real threat on network infrastructure from private ISPs. The government has recently decided to allow private ISPs to install its own international gateways and the private ISPs are readying themselves to set up the gateways. This will spare them from interconnecting with VSNL gateways that have associated quality problems. In addition to posing competition this will also directly affect revenues of VSNL since it is going to lose interconnection charges paid earlier by these private Internet service providers. This, however, could be thwarted if VSNL is successful in lowering the interconnection charges to such levels at which private operators may be better off by connecting through VSNL and not by installing own international gateways. How far would it be feasible for VSNL, is not known to us.

On the other hand, in providing Internet services VSNL has competition from MTNL as well as private operators. Currently VSNL has as much as 75-80 percent market-share in Internet services. Given the size and resources of MTNL and depending upon the ability of MTNL to succeed in future in the intensely competitive atmosphere, MTNL may be a greater threat than any other competitor to VSNL. The company seems to be realizing this. Otherwise, it would not have come out so quickly with a counter package when MTNL reduced the Internet charges to selected classes of potential Internet users. This may not, however, be sufficient. The company should be able to provide pre-emptively innovative service features to the Internet users to gain loyalty of not only existing customers but also new ones.

After 2004, stiff competition will emerge from both domestic and foreign competitors in international basic services too. New entrants may in-

stall their own gateways if the government permits them. This will lead to the loss of interconnection revenues to VSNL. New private operators may offer better quality of services and extra facilities and VSNL may lose its customers. If potential customers also perceive its services as of poor quality, the company may not succeed even in getting large number of new customers to compensate for the loss of existing clients. Besides, in future when DoT is made a separate corporation, it may have its own plans that could include installing its own international gateways if the government does not specifically prohibit it from doing so. In this case, VSNL will be in severe danger because even in future DoT as a corporation will be an important player in providing telecom services. Therefore, VSNL should prepare itself to meet the challenge. It has enough time to do this. The company has, in fact, realized the dangers lying ahead. That is why, it is trying to strengthen itself through its expansion plans and by providing a wide range of services required for its new generation customers. How far it succeeds in this venture only time can prove.

Stabilizing the performance may be a more difficult task for MTNL and VSNL in future when competition becomes really tough. To do that will, however, be inevitable. Much will depend on their ability to identify the changing needs of the existing and potential telecom customers and to introduce new service features at the earliest. For success in this respect, these companies may require the services of a well-designed and sharp market research cell.

The private competitors of MTNL and, later, of VSNL, may also offer attractive packages to its existing or new customers in order to get a firm foothold in the market. Then, in order to develop and offer counter-packages, these PSUs may have to improve their efficiency and cost effectiveness. For this, it is necessary to tone up their operational management and to control different performance variables discussed earlier. One important side effect of their success in this will be their continued ability to contribute to the development of the telecommunication services of the nation for which they had been originally designed.

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P. Rameshan, Ph. D., is presently associated with the Indian Institute of Management, Prabandh Nagar, Off Sitapur Road, Lucknow-226 013. He had been associated earlier with institutions like Gokhale Institute of Politics and Economics, Pune, and National Institute of Bank Management, Pune. He has published about a dozen research articles in various journals. His present areas of teaching and research interests include macroeconomic and industrial policies, performance of public enterprises under reforms, industrial productivity, and telecom development and policies.

Table-1
Category-wise Ratios Used in the Analysis

A. Return & Profitability Ratios
- Net Profit to Equity
- Net Profit to Net Worth
- Net Profit to Net Fixed Assets
- Net Profit to Capital Employed
- Net Profit to Net Sales
- Net Profit & Interest to Net Fixed Assets
- Net Profit & Interest to Capital Employed
- Net Profit & Interest to Net Sales
- Gross Profit to Net Fixed Assets
- Gross Profit to Capital Employed
- Gross Profit to Net Sales
- Gross Margin to Net Sales

B. Stockholders' Income Ratios
- Interest to Net Sales
- Interest to Gross Profit
- Interest to Debt
- Dividend to Equity
- Dividend to Net Worth
- Dividend to Net Sales
- Dividend to Net Fixed Assets
- Dividend to Net Profit
- Interest & Dividend to Gross Profit

C. Efficiency & Productivity Ratios

(a) Cost Efficiency Ratios
- Labour Cost to Total Expenditure
- Labour Cost to Net Sales
- Total Expenses to Net Sales
- Cost of Sales to Net Sales

(b) Debt Recovery Ratios
- Sundry Debt to Working Capital
- Sundry Debt to Net Sales
- Average Debt Collection Period

(c) Turnover Ratios
- Net Sales to Capital Employed
- Net Sales to Gross Fixed Assets
- Net Sales to Working Capital
- Net Sales to Current Assets
- Net Sales to Net Assets
- Net Sales to Regular Employees
- Value Added to Regular Employees

D. Liquidity Ratios
- Current Assets to Current Liabilities
- Quick Assets to Current Liabilities
- Liquid Assets to Current Liabilities

E. Capital Structure Ratios

(a) Capital Composition Ratios
- Working Capital to Capital Employed
- Net Worth to Capital Employed
- Debt to Capital Employed
- Equity to Net Worth

(b) Debt-Equity Ratio: Debt to Net Worth

F. Social Responsibility Ratios

(a) Tax Ratios
- Tax Payments to Profit Before Tax
- Tax Payments to Gross Profit
- Tax Payments to Net Sales

(b) Value Added Ratio: Value Added to Net Sales

(c) Income Disbursal Ratio
- Interest, Dividend & Labour Charges to Net Sales

(d) Retention Ratios
- Retained Profit to Net Profit
- Retained Profit to Gross Profit
- Retained Profit to Net Sales

G. Foreign Dependence Ratios

(a) Foreign Exchange Loan & Earnings Ratios
- Foreign Loans to Debt
- Foreign Exchange Earnings to Net Sales
- Foreign Exchange Earnings to Foreign Exch. Spending

(b) Foreign Exchange Spending to Net Sales Ratio

Table-2
Profile of TCIL, MTNL and VSNL—A Comparative Picture

Values in 1990-91 & 1997-98

Selected Parameter	TCIL		MTNL		VSNL	
	1990-91	1997-98	1990-91	1997-98	1990-91	1997-98
Share Capital (Rs. Lakhs)	60	720	60,000	60,000	6,000	9,500
Net Sales (Rs. Lakhs)	10,607	57,522	1,31,010	4,65,459	37,561	6,12,511
Gross Profit (Rs. Lakhs)	1,039	4,821	28,801	1,74,142	15,267	1,40,015
Employment (Number)	1,283	584	49,269	62,473	2,798	2,861

Source: *Public Enterprises Survey*, 1990-91 and 1997-98.

Table-3
Expected Direction of Movement of Different Categories of Ratios under Reforms Since 1991-92

Category of Ratios	Expected Direction of Movement of Ratios
(a) Return & Profitability Ratios	To remain stable if performance maintained or to decrease due to competition and fall in tariffs
(b) Stockholders' Income Ratios	To remain stable if changes in interest payments and dividends offset each other
(c) Efficiency & Productivity Ratios:	
Cost-Effectiveness Ratios	To decrease if efficiency improves due to advanced equipment, competition, etc.
Debt-Recovery Ratios	To decrease if sales recovery improves due to competition and efficiency
Turnover Ratios	To increase due to cost efficiency and other positive effects of reforms, competition, etc.
Liquidity Ratios	To remain stable if the effects of changes in credit access, efficiency and dividends offset each other
(d) Capital Structure Ratios:	
Capital-Composition Ratios	Uncertain. Debt content may rise due to increased scope for borrowing
Debt-Equity Ratio	To rise due to greater scope for borrowing
e) Social Responsibility Ratios:	
Tax Ratios	To fall in initial years due to falling rate of corporate tax and then to remain steady
Value-Added Ratio	To increase due to improved cost efficiency
Income-Disbursal Ratio	To decrease if labour cost proportion falls faster & exceeds any rise in stockholders' income
Retention Ratios	To remain stable or to decrease if dividends grow faster than net profit due to dis-investment
f) Foreign Dependence Ratios:	
Forex Loan & Earnings Ratios	To remain stable or to increase if globalisation increases
Forex-Spending Ratio	To decrease if net sales grow faster than forex spending

Table-4

Number of Ratios under Each Category & Total Frequencies of Each Category of Ratios in Each Period*

Category of Ratios	Number of Ratios	Period & Total Frequencies: Upto 1990-91 TCIL	Upto 1990-91 Other	1991-92 to 1997-98	1991-92 to 1993-94	1994-95 to 1997-98
a) Return & Profitability Ratios	12	60	48	84	36	48
b) Stockholders' Income Ratios	9	45	36	63	27	36
c) Efficiency & Productivity Ratios:						
Cost-Effectiveness Ratios	4	20	16	28	12	16
Debt-Recovery Ratios	3	15	12	21	9	12
Turnover Ratios	7	35	28	49	21	28
d) Liquidity Ratios	3	15	12	21	9	12
e) Capital-Structure Ratios:						
Capital-Composition Ratios	4	20	16	28	12	16
Debt-Equity Ratio	1	5	4	7	3	4
f) Social-Responsibility Ratios:						
Tax Ratios	3	15	12	21	9	12
Value Added Ratio	1	5	4	7	3	4
Income Disbursal Ratio	1	5	4	7	3	4
Retention Ratios	3	15	12	21	9	12
g) Foreign Dependence Ratios:						
Forex-Loan & Earnings Ratios	3	15	12	21	9	12
Forex-Spending Ratio	1	5	4	7	3	4

* = Total frequency is (number of ratios under each category) x (number of years in each period).

Table-5

Direction of Annual Movement of TCIL Ratios (% of Frequency*)

Category of Ratios	Period & Frequency % of Direction of Movement: 1986-87 to 1990-91 (5 years) Stable or Rising	1986-87 to 1990-91 (5 years) Falling	1991-92 to 1997-98 (7 years) Stable or Rising	1991-92 to 1997-98 (7 years) Falling	1991-92 to 1993-94 (3 years) Stable or Rising	1991-92 to 1993-94 (3 years) Falling	1994-95 to 1997-98 (4 years) Stable or Rising	1994-95 to 1997-98 (4 years) Falling
a) Return & Profitability Ratios	33.4	66.6	56	44	94.5	5.5	27.1	72.9
b) Stockholders' Income Ratios	75.5	24.5	79.4	20.6	70.3	29.7	86.1	13.9
c) Efficiency & Productivity Ratios:								
Cost-Effectiveness Ratios	55	45	53.6	46.4	41.6	58.4	62.5	37.5
Debt-Recovery Ratios	60	40	23.8	76.2	11.1	88.9	33.3	66.7
Turnover Ratios	62.9	37.1	75.5	24.5	85.7	14.3	67.9	32.1
Liquidity Ratios	26.7	73.3	38.1	61.9	33.3	66.7	41.6	58.4
d) Capital-Structure Ratios:								
Capital-Composition Ratios	45	55	60.7	39.3	75	25	50	50
Debt-Equity Ratio	40	60	42.9	57.1	0	100	75	25

e) Social-Responsibility Ratios:								
Tax Ratios	40	60	61.9	38.1	77.8	22.2	50	50
Value-Added Ratio	60	40	42.9	57.1	66.7	33.3	25	75
Income-Disbursal Ratio	40	60	28.6	71.4	33.3	66.7	25	75
Retention Ratios	53.4	46.6	42.9	57.1	66.7	33.3	25	75
f) Foreign-Dependence Ratios:								
Forex-Loan & Earnings Ratios	66.7	33.3	66.7	33.3	66.7	33.3	66.7	33.3
Forex-Spending Ratio	0	100	57.1	42.9	33.3	66.7	75	25

* = Total frequency of each category is equal to (number of ratios in each category) x (number of years in each period); % frequency is (number of values of ratios of each category moving in any direction over every year in given period)/(total frequency) x 100

Table-6
Direction of Annual Movement of MTNL Ratios (% of Frequency*)

Category of Ratios	Period & Frequency % of Direction of Movement							
	1986-87 to 1990-91 (4 years)		1991-92 to 1997-98 (7 years)		1991-92 to 1993-94 (3 years)		1994-95 to 1997-98 (4 years)	
	Stable or Rising	Falling	Stable or Rising	Falling	Stable or Rising	Falling	Stable or Rising	Falling
a) Return & Profitability Ratios	37.5	63.5	88.1	11.9	97.2	2.8	81.2	18.8
b) Stockholders' Income Ratios	38.8	61.2	54	46	55.5	44.5	52.7	47.3
c) Efficiency & Productivity Ratios:								
Cost-Effectiveness Ratios	37.5	62.5	53.6	46.4	33.3	66.7	68.7	31.3
Debt-Recovery Ratios	83.3	16.7	71.5	28.5	66.7	33.3	75	25
Turnover Ratios	57.1	42.9	71.5	28.5	52.4	47.6	85.7	14.3
Liquidity Ratios	83.3	16.7	38.1	61.9	55.6	44.4	25	75
d) Capital-Structure Ratios:								
Capital-Composition Ratios	56.2	43.8	46.4	53.6	50	50	43.7	56.3
Debt-Equity Ratio	100	0	28.6	71.4	66.7	33.3	0	100
e) Social-Responsibility Ratios:								
Tax Ratios	66.7	33.3	38.1	61.9	88.9	11.1	0	100
Value-Added Ratio	75	25	57.2	42.8	66.7	33.3	50	50
Income-Disbursal Ratio	25	75	42.9	57.1	33.3	66.7	50	50
Retention Ratios	50	50	81	19	77.8	22.2	83.3	16.7
f) Foreign-Dependence Ratios:								
Forex-Loan & Earnings Ratios	100	0	80.9	19.1	77.8	22.2	83.3	16.7
Forex-Spending Ratio	50	50	85.7	14.3	66.7	33.3	100	0

* = Total frequency of each category is equal to (number of ratios in each category) x (number of years in each period); % frequency is (number of values of ratios of each category moving in any direction over every year in given period)/(total frequency) x 100.

Table-7
Direction of Annual Movement of VSNL Ratios (% of Frequency*)

Category of Ratios	Period & Frequency % of Direction of Movement							
	1987-88 to 1990-91 (4 years)		1991-92 to 1997-98 (7 years)		1991-92 to 1993-94 (3 years)		1994-95 to 1997-98 (4 years)	
	Stable or Rising	Falling	Stable or Rising	Falling	Stable or Rising	Falling	Stable or Rising	Falling
a) Return & Profitability Ratios	35.4	64.6	58.4	41.6	50	50	64.6	35.4
b) Stockholders' Income Ratios	50	50	57.1	42.9	70.3	29.7	47.2	52.8
c) Efficiency & Productivity Ratios:								
Cost-Effectiveness Ratios	62.5	37.5	60.7	39.3	50	50	68.8	31.2
Debt-Recovery Ratios	50	50	57.1	42.9	66.7	33.3	50	50
Turnover Ratios	82.1	17.9	65.3	34.7	57.1	42.9	71.4	28.6
Liquidity Ratios	33.3	66.7	47.6	52.4	33.3	66.7	58.3	41.7
d) Capital-Structure Ratios:								
Capital-Composition Ratios	37.5	62.5	42.9	57.1	41.7	58.3	43.7	56.3
Debt-Equity Ratio	25	75	42.9	57.1	66.7	33.3	25	75
e) Social-Responsibility Ratios:								
Tax Ratios	41.7	58.3	28.6	71.4	44.4	55.6	16.7	83.3
Value-Added Ratio	25	75	42.9	57.1	66.7	33.3	25	75
Income-Disbursal Ratio	0	100	28.6	71.4	33.3	66.7	25	75
Retention Ratios	41.7	58.3	81	19	66.6	33.4	91.7	8.3
f) Foreign-Dependence Ratios:								
Forex-Loan & Earnings Ratios	66.7	33.3	66.7	33.3	55.5	44.5	75	25
Forex-Spending Ratio	50	50	42.9	57.1	66.7	33.3	25	75

* = Total frequency of each category is equal to (number of ratios in each category) x (number of years in each period); % frequency is (number of values of ratios of each category moving in any direction over every year in given period)/(total frequency) x 100.