Development Research Group

Study
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ON THE GUIDELINES RELATING TO VALUATION OF SHARES

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Issued for Discussion

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February 19, 1992

On the Guidelines Relating to Valuation of Shares

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This study examines in depth the implications of the guidelines relating to fresh issues of industrial securities as suggested by the Pherwani Study Group dealing with the same subject.

Our study is divided into four sections. Section I gives a brief account of those recommendations of the "Study Group for Guidelines Relating to Valuation and New Instruments" (Chairman: M.J. Pherwani) (hereafter to be referred to as Study Group or Pherwani Group or simply, the Group) that pertain to the valuation of securities, together with the existing guidelines for valuation of equity shares as given by the Government of India[1]. In Section II, we would examine the implications of the Pherwani Group recommendations and compare them with those that are obtained under the present official guidelines. Section III would provide an alternative formulation which, in our view, could provide a realistic basis for valuation of fresh issues. The last Section gives a summing up of our analysis.

Section I

The Study Group was constituted by the Government with the following purposes:

i) to review the existing guidelines relating to fresh issues and debentures, valuation of equity shares of the companies, cost of public issues of securities, listing of securities on stock exchanges, allotment of shares, refund of excess application

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1. Refers to the Guidelines issued by Government in July 1990.

money and to suggest revised guidelines for consideration by the Government;

ii) to evolve guidelines for issue of new financial instruments such as non-voting shares, zero coupon bonds and warrants; and

iii) to make suggestions on any other matters relevant to items (i) and (ii) above.

A. **Recommendations relating to valuation of securities**

(1) Approval requirements should, in the view of the Study Group, be exempted for certain issues (bonus, rights and small-valued public issues). Where approval of the Controller of Capital Issues (CCI) is not needed, lead merchant bankers, would have to, as the Group has suggested, ensure that valuation guidelines are complied with. At present, all issues require approvals of CCI and lead merchant bankers have no role to play.

(2) Pricing of issues of new and loss-making unlisted companies should, according to Pherwani Group, be on par. The existing official position on this matter is the same.

(3) In the case of the existing listed companies, the Study Group recommends an issue price cap. According to the Group, the issue price cap should be an average of the following factors:

(i) the average market price of the preceding six months[2]

(ii) the price earning value, based on the actual profit after tax calculated as per the existing guidelines (but including the actual tax rate), capitalised at the range of rates detailed below:

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2. The average market price would be calculated using monthly high/low over the relevant period.

P/E Range [3]	Capitalisation Rate
Below 4	15 per cent
For a one point increase in P/E	Reduction in capitalisation rate on a pro-rata basis by a factor 0.7
Above 20	4 per cent

(4) In the case of companies which have issued bonus or rights in the preceding two years, the average market price, according to the Study Group, would need to be suitably adjusted retrospectively in the same ratio.

(5) In the case of companies making issues whether public or rights of equities or convertible debentures in a ratio greater than 1:1, the Study Group recommends that the discount rates should be applied on the price to arrive at an appropriate issue price. The discount rate moves up from 20 per cent to 50 per cent for every one point rise in the ratio of public or rights issues and convertible debentures of greater than 1:1.

The Pherwani Group's recommendations differ widely from the official guidelines on valuation now in existence. These guidelines are provided in the following sub-section.

B. The existing Guidelines for valuation

The Government of India's present guidelines for valuation of equity shares of companies are administrative instructions applicable to the valuation of (a) equity shares of companies (private and public limited), (b) Indian business/net assets of Sterling Tea companies and (c) Indian business/net assets of the branches of foreign companies.

3. P/E is the ratio of market price to earning per share. P/E range relates to the actual average P/E as prevailing in the market for the preceding six months based on the last audited accounts. For the purpose of calculation actual P/E should be rounded off to the nearest whole number.

The official guidelines aim to arrive at a best reasonable judgement of the value of the equity share of a company, i.e., the fair value (FV) on the basis of a formula. The formula is essentially an average of:

(a) Net Asset Value (NAV), calculated according to the latest audited balance-sheet, and is similar to net worth or traditional book value;

(b) Profit-earning capacity value (PECV), estimated by capitalising the profit after tax (PAT) for equity shares for the preceding 3 years at specified capitalisation rates [4]. The capitalisation rates are:

(i) 15 per cent in the case of manufacturing companies,

(ii) 20 per cent in the case of trading companies and

(iii) 17.5 per cent in the case of intermediate companies i.e., companies whose turnover from trading activity is more than 40 per cent but less than 60 per cent of their total turnover.

The average of NAV and PECV is taken as FV for a non-listed company. If the company is listed, the average of NAV and PECV is adjusted with the market value, which in its turn, is the average price of the company share in the preceding three years [5]

If the average of NAV and PECV at 15 per cent capitalisation rate is *less* than the average market value (AMV) by about 20 per cent, the average would be regarded as Fair Value. If, however, the average of NAV and PECV is less than AMV by over 20 per cent, then there would be adjustments to PECV of the following kind.

4. Ordinarily the averaging of profits will be done for the last 3 years for which audited accounts are available. However, where industry concerned is subject to cyclical trend e.g., tea industry, the latest 5 years' profits may be taken into account.

5. The MV is calculated thus: The high and low of the preceding two years and the high and low of each month in the preceding twelve months are averaged.

(i) If the AMV is more than 20 per cent but less than 50 per cent of the Fair Value (FV), the capitalisation rate would be 12 per cent;

(ii) If the AMV is more than 50 to 75 per cent, the capitalisation rate would be reduced to 10 per cent; and

(iii) If the AMV is more than 75 per cent and above, the capitalisation rate would be only 8 per cent.

Section II

A. Limitations of the Existing Official Guidelines

The existing official guidelines regarding valuation of equity shares are extremely complicated. The Study Group has done well to point out some of the conceptual and practical limitations of the existing official guidelines. As the Study Group has rightly stated, the guidelines do not wholly take into account the intrinsic characteristics of each company/industry and /or market conditions prevailing at the time of issue, with the result the determined fair value has little relation to the market price of the share. Moreover, as the premia that are historically permitted have been substantially below market prices, the new shareholders have benefited at the expense of the existing shareholders. Furthermore, the official formula as adopted differs in relation to equity issues and convertible debenture issues, resulting in higher premium being permitted in the case of convertible debenture issues.

It is also important to note that notwithstanding the official guidelines to link up the book value and market price of a share, there has been statistically speaking a weak relationship between the two. This is particularly in evidence in the case of companies with an active bonus policy, on which market places a premium. The net asset value method in the case of such companies, works against the companies' interests. Yet another limitation of the official valuation norms is that they ignore the considerable variations that exist in the price-to-earning ratios (P/E ratios) across corporations and industries. The P/E ratio is an important indicator of how the markets value a company. In recent periods, the average P/E ratio of the companies has shown a considerable uptrend ranging between 15 and 25 across a wide spectrum of industries. This suggests that the general rule of 15 per cent capitalisation rate as per the existing guidelines is unrealistic and is at a considerably higher level than what the market would accept.

The Study Group's critical observation as discussed above on the official approach to valuation of shares is in line with the economic reasoning underlying the market-oriented approach. The official book-value method relies exclusively on the past account data and is therefore not very relevant for valuation of an on-going concern. Further, giving equal weightage to the historical book value and PECV in ultimate computation does not have any merit, in the sense that PECV is related to P/E ratio (theoretically an inverse of capitalisation rate) in the market which is a crucial indicator of the investors' inclinations.

We have taken a sample study of selected ten companies to examine whether application of the present guidelines has led to a systematic under-pricing of new issues. The exercise is detailed out in Statement 1. As may be seen from Statement 1, the adjusted or reworked PECV at 8 per cent capitalisation rate is higher and the Net Asset Value (NAV) is lower than the FV in the case of all the companies. Even at 15 per cent capitalisation rate, 7 companies have PECV higher than FV. In other words the historical NAV has resulted in a lower FV. The extent of under-pricing is set out in Table 1.

The table shows that the market price has been higher than the fair value in the range of 72 per cent and 403 per cent. While under-pricing of shares would no doubt have helped create a substantial body of small investors, promotion of such equity cult would mean a cost - a substantial one at that - in terms of over subscriptions. Moreover, under-pricing of shares would force

Table 1: Extent of Under-pricing according to Existing Guidelines

(Amount in Rupees)

Name of the Company	FV at 8 per cent PECV	Current Market price*	Percentage variation between Current Price and FV
1.	2.	3.	4.
1. Bombay Dyeing	136.10	542.50	298.6
2. TISCO	78.98	291.50	269.1
3. ACC	774.76	3900.00	403.4
4. India Photographic	69.93	185.00	164.6
5. Century Textiles	1785.90	7150.00	300.4
6. Hindalco	189.45	355.00	87.4
7. GSFC	121.34	355.00	192.6
8. Great Eastern Shipping	43.63	128.00	193.4
9. Colgate	85.68	377.50	340.6
10. Warren Tea#	103.26	177.50	71.9

* As on January 29, 1992.
\# PECV is calculated taking average of 5 years, as should be done in the case of tea companies.

companies to issue larger number of shares to raise the same amount of money. Another major distortion would be transfer of wealth from the existing shareholders to a new set of shareholders whenever companies make new issues other than rights ones. For these reasons, systematic under-pricing should be given up, and deliberate policy actions are needed to move towards achieving a fair and realistic pricing of shares. The question to be asked is: whether the Pherwani Group has succeeded in this objective?

B. Comments on the Study Group's Recommendations

The Study Group's recommendations for a market-related price is undoubtedly an improvement over the existing guidelines. The formula suggested by the Pherwani Group has the merit of simplicity as it has done away with the cumbersome calculations required to be made under the existing guidelines.

The suggested formula by the Study Group contemplates in the case of the existing companies an issue price cap representing an average of two values - the average market price of shares (average of the high - low of the preceding six months) and the price-earning value capitalised at a range of rates. It is by now well recognised that the last six months' market price is almost universally a multiple of earning per share (EPS), which EPS is the latest known EPS. The P/E ratio is also derived from EPS, since it is equal to the ratio of current market price and EPS. As such, averaging of two computations both derived from identical set of data has hardly any merit except that it finds some intermediate position. The Study Group has fixed the P/E range at below 4 at the lower end and above 20 at the upper end. Corresponding to the range of P/E ratios, the capitalisation rate is fixed at 15 per cent at the maximum and at 4 per cent at the minimum. The group has also held that for every one point increase in P/E, the reduction in capitalisation rate would be on a pro-rata basis by a factor, 0.7. The factor 0.7 is arrived at by taking the ratio of the difference between the maximum and minimum capitalisation rate and the difference between maximum and minimum P/E ratios. This is indicated in the following exhibit.

Exhibit

	P/E Range	Capitalisation Rate
	i) Below 4	15 per cent
	ii) Above 20	4 per cent
Difference between the maximum and minimum	16	11

Memo Item

Discount Factor 11 ÷ 16 = 0.69 = 0.7

The basis of the above exhibit is not clear. Given the theoretical position that P/E is the inverse of capitalisation rate, the arithmetic of the above exhibit would give 25 per cent capitalisation rate for a P/E ratio of 4 and 4 per cent capitalisation rate for a P/E ratio of 25 as against 20.

In recent periods, P/E ratio has been on the rise. An examination of the BSE National Index (Base : 1983-84 = 100) which includes 100 scrips, reveals that the average monthly P/E ratios moved between 15 to 24 in recent period (January 1990 - October 1991). Since April 1991 the ratio has been over 20. Table 2 shows that as P/E ratios had been high and rising, capitalisation rates were low, moving between 4 per cent and 7 per cent.

The pertinent question here is, should one derive the capitalisation rate purely as inverse of P/E ratio and calculate the capitalised earnings? Or, should one relate the capitalisation rate to the prevailing market rate of interest? In a rising stock market as it is at present, a high P/E would give a lower capitalisation rate. However, taking the volatility of the stock market this may not be a permanent feature. Therefore it would be prudent to relate the capitalisation rate to the market interest rate and perceptions of the market with regard to the riskiness of business.

When one considers risk-free annual returns on bank deposits, the rate would be around 9 per cent and if an adjustment of 2-3 per cent for volatility in shares is proxied for the risk factor, capitalisation rate would be about 12 per cent. But in a rising market, the capitalisation rate would be somewhat lower at 8 per cent. This may be taken as a minimum upto which capitalisation could go. Having a wider range of 4 to 15 per cent does not have much merit. Besides, such a wide range in capitalisation rates may not provide any protection to the new as well as the existing share holders.

Table 2: Monthly Average of P/E ratio according to BSE National Index (Base: 1983-84 = 100) and Capitalisation Rate

Year/Month	Monthly Average of P/E ratio	Capitalisation rate (1÷P/E) (In per cent)
1.	2.	3.
1990		
January	16.11	6.20
February	15.02	6.67
March	15.52	6.44
April	17.12	5.84
May	17.94	5.57
June	16.64	6.01
July	18.50	5.41
August	21.12	4.73
September	23.19	4.31
October	22.59	4.43
November	21.38	4.68
December	18.84	5.31
1991		
January	16.58	6.03
February	17.97	5.56
March	19.11	5.23
April	20.17	4.96
May	20.63	4.85
June	20.35	4.91
July	21.96	4.55
August	24.49	4.08
September	23.99	4.17
October	23.05	4.34

We made an attempt to empirically test the issue price cap as suggested by the Study Group with data for the ten selected companies. We have taken into account the latest known EPS as was done in the Study Group report. Our detailed results are reported in Statement 2. The issue price cap as suggested by the Group together with the fair value of shares that would reflect the application of official guidelines are compared with the current market price in Table 3.

Table 3. Issue Price Cap as suggested by the Study Group and Fair Value of Shares as per the Existing Guidelines

	Issue Price Cap based on 1990-91 EPS	Fair value as per the existing Guidelines	Current Market Price #
1	2	3	4
1. Bombay Dyeing	359.79 (50.8)	136.10 (298.6)	542.50
2. TISCO	203.42 (43.3)	78.98 (269.1)	291.50
3. ACC	3247.33 (20.1)	774.76 (403.4)	3900.00
4. India Photographic	109.45 (69.0)	69.93 (164.6)	185.00
5. Century Textiles	7012.79 (2.0)	1785.90 (300.4)	7150.00
6. Hindalco	346.15 (2.6)	189.45 (87.4)	355.00
7. GSFC	269.90 (31.5)	121.34 (192.6)	355.00
8. Great Eastern Shipping	100.02 (28.0)	43.63 (193.4)	128.00
9. Colgate	349.40 (8.0)	85.68 (340.6)	377.50
10. Warren Tea	185.60 (-3.4)	103.26 (71.9)	177.50

Figures in brackets are percentage variations to current market price.
As on January 29, 1992.

It may be seen from the table that the issue price cap suggested by the Study Group would come very much closer to the current market price. Four companies have a small difference between the range of -3.4 per cent and 8 per cent and six companies in the range of 20 per cent and 69 per cent when compared with the current market price. As against this, under the existing guidelines, the difference between the fair value and current market price would be in the range of 72 per cent and 403 per cent.

Should one accept the Pherwani Group formula merely because it gives outcomes regarding valuation of shares which are very close - in some cases too close for comfort - to market prices of equity shares? Are market prices reflective of the true market forces of demand and supply? Do they reflect the inherent strength of the economy in general and of the companies in particular?

These questions need to be addressed with reference to the movements in share prices which have in recent years tended to be too buoyant, volatile and mis-aligned. Table 4 gives variability of share prices (measured in terms of coefficient of variation) as reflected in the BSE indices (both 'National' and 'Sensitive') on an annual basis from 1988-89.

It may be seen from the table that in the three financial years 1988-89 through 1990-91, the means of both national and sensitive price indices have gone up, in particular sharply in 1990-91. In the eight months of 1991-92, the mean value has further increased. The standard deviation has moved up and down between 1988-89 and 1990-91 and has moved up further in the 1991-92 upto November. As a consequence, the coefficient of variation too has fluctuated widely. The table indicates that the average market price of the year that has gone by would not be a reliable market price of the present, during a period of general uptrend in prices.

The variability in above price indices has not reduced even if one considers a shorter period, say of six months. Table 5 gives details of mean, standard deviation, and coefficient of variation for the

Table 4. Variability of Share Prices

		1988-89	1989-90	1990-91	1990-91	1991-92
					April-November	
A.	**BSE National Index**					
a.	Mean	302.85	386.62	544.49	537.78	753.52
b.	Standard Deviation	44.35	14.42	92.33	114.59	109.77
c.	Coefficient of Variation (In per cent) (b ÷ a x 100)	14.64	3.73	16.96	21.31	14.57
B.	**BSE Sensitive Index**					
a.	Mean	612.79	729.28	1067.53	1045.39	1564.05
b.	Standard Deviation	81.77	29.22	207.03	255.26	257.84
c.	Coefficient of Variation (In per cent) (b ÷ a x 100)	13.36	4.01	19.39	24.42	16.49

Table 5: Variability of Share Prices

		Mean	Standard Deviation	Coefficient of Variation
1		2	3	4
A. BSE National Index				
1988-89	April-September	265.42	29.10	10.96
	October-March	342.05	6.92	2.02
1989-90	April-September	380.68	6.74	1.77
	October-March	391.85	13.05	3.33
1990-91	April-September	495.29	98.22	19.83
	October-March	590.24	65.92	11.17
1991-92	April-September	714.82	105.38	14.74
B. BSE Sensitive Index				
1988-89	April-September	555.10	75.93	13.68
	October-March	673.04	18.92	2.81
1989-90	April-September	733.02	15.50	2.11
	October-March	723.97	27.23	3.76
1990-91	April-September	946.71	210.33	22.22
	October-March	1181.12	142.00	12.02
1991-92	April-September	1464.98	246.78	16.85

two halves of each financial year beginning 1988-89. The coefficient of variation moved within a small range in 1989-90 as between the two halves of the year. This may be attributed to the fact that 1989-90 was characterised by considerable economic and political uncertainty. The hesitancy on the part of the stock market during the year however gave way to considerable buoyancy in the very next year.

Both Tables 4 and 5 highlight the fact that the volatility in share market prices could co-exist within an environment of a general uptrend. This conclusion may come out in still bolder relief if one were to study the movements in prices of a few individual shares in the specified list. This is a clear indication that markets have been less than perfect and that they could be subject to considerable speculative and temporary factors.

Apart from variability, there has been misalignment of share prices in recent years. The misalignment may be seen with reference to the analytical framework of saving - investment relationship. In equilibrium, saving would be equal to investment but in developing countries, one may postulate that saving (S) would be lower than investment (I) in ex ante sense. Ex-post S would equal I, provided that there is influx of savings from outside the system. S and I could be decomposed in terms of their sectoral origin - public and private sectors - and arrive at the following identity.

$$S - I = (S_{pub} - I_{pub}) + (S_{pri} - I_{pri})$$

Where $(S_{pub} - I_{pub})$ is in deficit in the sense that investment exceeds saving, because of large public sector deficit, the saving - investment identity can be achieved only if (S_{pri}) is in excess of (I_{pri}). The Indian data in the last five years - the years of buoyancy of Indian capital markets - suggests that there has been an overall macro economic imbalance in that I has been in excess of S, which is being financed by foreign saving, and is reflected in external current account deficit. During the last five years, there has also been large public sector deficit. This can be seen clearly from Table 6.

**Table 6 : Saving-Investment Balance
1985-86—1989-90**

As Proportion of Gross Domestic Product at Current Market Prices

	S	I	S-I	S (pub)	I (pub)	S(pub)- I(pub)	S (pri)	I (pri)*	S(pri)- I(pri)
1985-86	19.7	22.1	-2.4	3.2	11.1	-7.9	16.5	12.9	3.6
1986-87	18.4	20.6	-2.2	2.7	11.7	-9.0	15.6	11.4	4.2
1987-88	20.3	22.4	-2.1	2.2	10.4	-8.2	18.2	12.2	6.0
1988-89	21.1	23.9	-2.8	2.0	9.9	-7.9	19.2	14.0	5.2
1989-90	21.7	24.1	-2.4	1.7	10.7	-9.0	19.9	12.9	7.0

* Excluding Errors & Ommissions.

Private sector includes household sector and private corporate sector.

Source : Economic Survey, 1990-91, Government of India, 1991

The table shows that the public sector deficit has been around 8-9 per cent of nominal GDP. The private sector saving-investment relationship is one of surplus. This should imply that loanable funds with the private sector are in excess supply, and should, therefore, be available at relatively low interest rates. But as there is an overall S-I imbalance due to public sector operations, interest rates would be pulled up, to levels that, one would expect would broadly correspond to the general commodity price inflation. From all available evidence, the share market prices, especially of companies which are regarded as good performers have risen by a far larger proportion than the general inflation rate, the margin of difference between the two being more than what a reasonable premium would justify. Besides, the buoyancy in shares is hardly in line with the trends in production and prices of the manufacturing sector during the last five years.

Section III

Should the Pherwani Group recommendation be then accepted as it is? There are few reasons why one may have to adopt caution in accepting the Group's recommendations. First, the stock markets have a limited number of floating stock. Secondly, a sudden departure from the existing official mechanism to one which is closest to market price-oriented mechanism may disproportionately enlarge the premium amount and may put some pressure on the new investors. Thirdly, the present market prices may themselves be subject to certain conditions that do not necessarily reflect the economic fundamentals.

Our study looks at the entire problem of valuation of shares from the view point of protecting the investors' interests as well as rationalising the valuation mechanism. In our view, this could be achieved if valuation reflects capitalized earnings which are most sought and most closely monitored by both individual and institutional investors.

In our formulation, an average EPS for the previous three years for which audited accounts are available may be taken as the requisite data for computation. The three-year period would enable the investor to appreciate the inherent strength of the companies. Considering the present market conditions, EPS would be capitalised at 8-12 per cent, the rationale about which was already provided in the previous section. The PECV that is obtained would be compared with the average market price for the most recent period, say of six months to provide for a gradual relaxation in the capitalisation rate, subject to the minimum of 8 per cent.

Proceeding on this basis, shares of the same companies as are presented in Table 1 and 3 are valued, for illustration purpose, at 8 per cent capitalisation rate, and compared with the valuations that would be obtained under the existing guidelines and the Pherwani Group formula. These details are furnished in Table 7. It may be noted from the table that our approach would give values which

Table 7 : Valuation according to the three Approaches

		Existing Guidelines	Pherwani Group Formula	Recomm-ended @	Average of last 6 months	Market Price
	1.	2.	3.	4.	5.	6.
1.	Bombay Dyeing	136.10 (298.6)	359.79 (50.8)	215.00 (152.33)	320.32	542.50
2.	TISCO	78.98 (269.1)	203.42 (43.3)	96.00 (203.6)	232.58	291.50
3.	ACC	774.76 (403.4)	3247.33 (20.1)	1123.50 (247.1)	3205.83	3900.00
4.	India Photographic	69.93 (164.6)	109.45 (69.0)	70.13 (163.8)	114.90	185.00
5.	Century Textiles	1785.90 (300.4)	7012.79 (2.0)	2296.88 (211.3)	6723.33	7150.00
6.	Hindalco	189.45 (87.4)	346.15 (2.6)	293.50 (21.0)	320.73	355.00
7.	GSFC	121.34 (192.6)	269.90 (31.5)	168.63 (110.5)	268.54	355.00
8.	Great Eastern Shipping	43.63 (193.4)	100.02 (28.0)	62.00 (109.0)	96.00	128.00
9.	Colgate	85.68 (340.6)	349.40 (8.0)	147.00 (156.8)	353.54	377.50
10.	Warren Tea	103.26 (71.6)	185.60 (-3.4)	133.63 (32.8)	192.71	177.50

Figures in brackets are percentage variations to current market prices.

@ At 8 per cent capitalisation rate.

would be somewhere between those that the existing guidelines would offer and those that Pherwani Group recommendation would entail. The values that emerge out of our approach would be nearer to the average market price of the recent period which to some extent eliminates the effects of speculative and monetary market pressures.

The approach suggested here is both a simplification as well as rationalisation of the valuation mechanism and could be a useful guideline for merchant bankers to follow. If in future, market become relatively more stable and are rid of the many imperfections that presently surround them, the capitalisation rate could be suitably changed.

Section IV

The discussion above has shown that while the existing official guidelines have serious limitations, and have led to sharp under-pricing of shares, the Study Group recommendations have very little analytical strength and appeal to facts. The relationship between the capitalisation rate and P/E ratio suggested by the Study Group places the role of capitalisation outside the considerations of market rate of interest and perceptions of business risk. The issue price cap that emerges out of the recommendations by the Study Group would give rise to prices that come very close to the current market prices, but share prices have been too buoyant, volatile and misaligned. The presence of speculative and temporary factors has tended to provide buoyancy to the market which is hardly in line with the trends in the economic fundamentals in recent years.

The study has offered an alternative formulation which would give investor protection and rationalise the valuation mechanism. Under this scheme, an average earning per share (EPS) for the previous three years of audited accounts should be capitalised at a rate that reflects the market rate of interest, the risk factor and the trends in share prices. The range the study suggests for capitalisation at present is 8-12 per cent. Once the markets become more stable and relatively perfect, the capitalisation rate could be suitably changed.

Statement 1 : Valuation of Shares : Existing Guidelines
Date of Valuation : January 29,1992

(Amount in Rupees)

Steps in the Valuation Procedures	Bombay Dyeing	TISCO	ACC	India Photographic	Century Textiles	Hindalco	GSFC	Great Eastern Shipping	Colgate	Warren Tea@
1	2	3	4	5	6	7	8	9	10	11
1. Net Asset Value (NAV) as at End-March 1991	57.19	61.95	426.02	69.72	1274.91	85.39	74.05	25.26	24.36	72.88
2. Profit After Tax per share for the last three year Or Earning Per Share (EPS) for the last three years**										8.22(i) 6.68(ii)
2.1 EPS 1989 (April-March)	16.04	9.89*	42.19	10.29	25.04	17.62	18.06	3.62	13.51	8.72
2.2 EPS 1990 (April-March)	19.59	6.17	30.11	2.38	234.13	36.09	11.56	5.84	7.97	18.06
2.3 EPS 1991 (April-March)	15.97	6.97	197.33	4.16	292.09	16.72	10.85	5.41	13.81	11.78
3. Average EPS (1989-1991)	17.20	7.68	89.88	5.61	183.75	23.48	13.49	4.96	11.76	10.69
4. Profit Earning Capacity Value (PECV) capitalised at 15 pe cent	114.67	51.20	599.20	37.40	1225.00	156.53	89.93	33.07	78.40	71.27
5. Fair value (FV) i.e., Average of NAV And PECV	85.93	56.58	512.61	53.56	1249.96	120.96	81.99	29.17	51.38	72.08
6. Paid-up per share	10.00	10.00	100.00	10.00	100.00	10.00	10.00	10.00	10.00	10.00
6.1 Date of Current Market Price	29-1-1992	29-1-1992	29-1-1992	29-1-1992	29-1-1992	29-1-1992	29-1-1992	29-1-1992	29-1-1992	29-1-1992
6.2 Amount of Current Market Price	542.50	291.50	3900.00	185.00	7150.00	355.00	355.00	128.00	377.50	177.50
6.3 Average Market Price calculated as follows:										
6.4 Average of High-low in preceding two years i.e. 1989 and 1990.	278.25	184 .13	1413.50	85.75	2980.00	283.88	198.75	40.88	265.63	150.50

Statement 1 : Valuation of Shares Existing Guidelines
Date of Valuation : January 29,1992 (Contd.)

(Amount in Rupees)

	Steps in the Valuation Procedures	Bombay Dyeing	TISCO	ACC	India Photographic	Century Textiles	Hindalco	GSFC	Great Eastern Shipping	Colgate	Warren Tea@
	1	2	3	4	5	6	7	8	9	10	11
6.5	Average of High-Low in the preceding 12 months i.e., January 1991 to December 1991.	263.25	200.92	2652.71	98.44	5646.46	285.89	228.80	67.30	326.39	166.00
7.	Average of 6.4 and 6.5	270.74	192.53	2033.11	92.10	4313.23	284.89	213.78	54.09	296.01	158.25
8.	Reasonableness of the Fair value (FV) if FV at Step 5 is less than AMP at Step 7 by 20 percent	FV is unreasonable	FV is unreasonable	FV is unreasonable	FV is unreasonable	FV is unreasonable	FV is unreasonable	FV is unreasonable	FV is unreasonable	FV is unreasonable	FV is unreasonable
9.	Reworking of PECV if FV is less than AMP by over 20 per cent.	Reworking of PECV at 8%	Reworking of PECV at 8%	Reworking of PECV at 8%	Reworking of PECV at 8%	Reworking of PECV at 8%	Reworking of PECV at 8%	Reworking of PECV at 8%	Reworking of PECV at 8%	Reworking of PECV at 8%	Reworking of PECV at 8%
9.1	AMP is more than FV by 20%-50% PECV capitalised at 12 per cent										
9.2	AMP is more than FV by 50%-75% PECV capitalised at 10 per cent										
9.3	AMP is more than FV by 75% and above PECV calculated at 8%	215.00	96.00	1123.50	70.13	2296.88	293.50	168.63	62.00	147.00	133.63
10.	Adjusted FV i.e., Average of NAV and Adjusted PECV	136.10	78.98	774.76	69.93	1785.90	189.45	121.34	43.63	85.68	103.26

* Shares of Rs. 100 Face Value has been subdivided into Rs. 10 Face Value and quoted on the base from October 23; 1989. To maintain uniformity all shares before October 23, 1989 were made Rs. 10.

** Although one could take weighted EPS, here only an arithmetic average is used a practicise that is most widely in vogue. @ Since it is a tea company EPS for 2 more years 1987 and 1988 are taken to take an average EPS of 5 years. (i) 1987 (ii) 1988.

Statement 2 : Valuation of Shares : Pherwani Study Group
Date of Valuation : January 29, 1992

(Amount in Rupees)

	Steps in the Valuation Procedures	Bombay Dyeing	TISCO	ACC	India Photographic	Century Textiles	Hindalco	GSFC	Great Eastern Shipping	Colgate	Warren Tea
	1	2	3	4	5	6	7	8	9	10	11
1.	Earning per Share (EPS) 1990-91 (April-March)	15.97	6.97	197.33	4.16	292.09	16.72	10.85	5.41	13.81	11.78
2.	Average Market Price (AMP) of preceding six months@										
2.1	July	210.63	211.25	2592.50	74.38	6102.50	283.75	220.00	76.00	319.38	185.00
	August	266.25	240.50	3245.00	96.25	7325.00	324.38	241.88	94.25	350.00	205.00
	September	325.00	237.50	3595.00	98.75	7275.00	340.00	242.50	100.50	389.38	195.00
	October	347.50	228.75	3325.00	105.00	6162.50	326.25	283.13	93.25	407.50	182.50
	November	374.38	233.00	3340.00	155.00	6812.50	313.75	315.00	105.50	366.25	193.75
	December	398.13	244.50	3137.50	160.00	6662.50	330.25	308.75	106.50	288.75	195.00
2.2	Average of the averages at 2.1	320.32	232.58	3205.83	114.90	6723.33	320.73	288.54	96.00	353.54	192.71
3.	Price/Earning Range i.e., Average Market Price+ EPS 1990-91	20.06	33.37	16.25	27.62	23.02	19.18	24.75	17.74	25.60	16.36
4.	Capitalisation Rate as followed from Step 3 (in per cent)	4	4	6	4	4	4.5	4	5.2	4	6.6
5.	Price/Earning Price i.e., EPS 1990-91+ Capitalisation Rate*	399.25	174.25	3288.83	104.00	7302.25	371.56	271.25	104.04	345.25	178.48

Statement 2 : Valuation of Shares : Pherwani Study Group
Date of Valuation : January 29, 1992 (Contd.)

(Amount in Rupees)

	Steps in the Valuation Procedures	Bombay Dyeing	TISCO	ACC	India Photographic	Century Textiles	Hindlco	GSFC	Great Eastern Shipping	Colgate	Warren Tea
	1	2	3	4	5	6	7	8	9	10	11
6.	Issue Price cap i.e., AMP + P/E Price as averaged	359.79	203.42	3247.33	109.45	7012.79	346.15	269.90	100.02	349.40	185.60
7.	Date of Current Market Price	29-1-1992	29-1-1992	29-1-1992	29-1-1992	29-1-1992	29-1-1992	29-1-1992	29-1-1992	29-1-1992	29-1-1992
8.	Amount of Current Market Price	542.50	291.50	3900.00	185.00	7150.00	355.00	355.00	128.00	377.50	177.50
9.	Paid-up per Share	10.00	10.00	100.00	10.00	100.00	10.00	10.00	10.00	10.00	10.00

@ Average Market Price is calculated from the average of High and low of the preceding six months.

* Please see the Attachment 1 for P/E Range and corresponding capitalisation rate.

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Attachment 1 for Statement No. 2 : P/E Range and Corresponding Capitalisation Rate*

P/E Range	Capitalisation Rate (in per cent)
Below 4	15
5	14.3
6	13.6
7	12.9
8	12.2
9	11.5
10	10.8
11	10.1
12	9.4
13	8.7
14	8.0
15	7.3
16	6.6
17	5.9
18	5.2
19	4.5
Above 20	4.0

* Study Group assumed for a one point increase in P/E a reduction in capitalisation rate on a pro-rata basis by a factor of 0.7.

Statement 3 : Valuation of Shares : A Suggested Approach
Date of Valuation : January 29, 1992

(Amount in Rupees)

	Items in the Valuation Procedures	Bombay Dyeing	TISCO	ACC	India Photo-graphic	Century Textiles	Hindalco	GSFC	Great Eastern Shipping	Colgate	Warren Tea
	1	2	3	4	5	6	7	8	9	10	11
1.	Average EPS (1989-91)	17.20	7.68	89.88	5.61	183.75	23.48	13.49	4.96	11.76	10.69
1.1	PECV at 12 per cent capitalisation rate	143.33	64.00	749.00	46.75	1531.25	195.67	112.42	41.33	98.00	89.08
2.	Average Market Price of the preceding six months	320.32	232.58	3205.83	114.90	6723.33	320.73	268.54	96.00	353.54	192.71
3.	PECV capitalised at 8 per cent	215.00	96.00	1123.50	70.13	2296.88	293.50	168.63	62.00	147.00	133.63
4.	Date of Current Market Price	29.1.1992	29.1.1992	29.1.1992	29.1.1992	29.1.1992	29.1.1992	29.1.1992	29.1.1992	29.1.1992	29.1.1992
5.	Amount of Current Market Price	542.50	291.50	3900.00	185.00	7150.00	355.00	355.00	128.00	377.50	177.50
6.	Paid-up per share	10.00	10.00	100.00	10.00	100.00	10.00	10.00	10.00	10.00	10.00

DRG Studies Series

No.	Title	Date
1.	On the Guidelines Relating to Valuation of Shares	February 19, 1992.