Desirability Availability Gap of Project Appraisal Aspects in Development Banks: Factor Analysis of Bankers' Perspective

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The project appraisal procedure adopted by development financial institutions goes a long way in determining the success of a project. Performance of a development bank depends a great deal on the type of project that is selected by it to finance. The present paper attempts to identify through factor analysis such key variables as are desirable and the ones that are available for the project appraisal being conducted by development banks. Through data reduction exercise, nine factors including financial, marketing and forecasting techniques, management, economic, natural resources and demand and supply aspects have turned out as desirable for the project appraisal being conducted by development banks in present competitive environment. The factors that are identified as available in practice include financial, product promotion, plan priority of country, demand forecasting techniques, management and commercial aspects etc. The study reveals that the correlation between the perceived desirability and the availability of the different variables accounting for the banks' project appraisal procedure are invariably high. While the desirability has been ranked high on the scale, the availability has been ranked higher. By implications, it means that the development banks have brought in their wake not only the realisation about the desirability, but also have caused the availability of some of the very important variables required for the purpose for devising project appraisal methods.

Introduction

Financing a project is often the most difficult operation, with the highest risks occurring during the construction phase. Often equity finance is arranged to overcome this problem before revenue is generated by the project. Though equity is a primary source it is sparse to meet the needs of the project in majority of the cases such as infrastructure projects, and other developmental projects. Therefore, to meet the demand of such huge projects, financial institutions are sought after. Development banks undertake to appraise projects by gathering maximum information on their scope, purpose, relevance to the present needs of the society or economy, and such other details which may help decision-making on lending of the funds. The banks, like other money lenders, are interested in getting the money back and have it in safe hands. Since the banker is the custodian of public funds and occupies a position of trustee, it is essential to be very careful in analyzing proposals for advances.

The project appraisal by a banking institution is done to determine the true potential of a sponsor and his managerial capabilities to undertake risk. In order to do so, first of all, the institutions check on the financial soundness of the project and the corresponding background of the project sponsor. In other words, the banks will have to scan through the credibility or creditworthiness of both the project as well as the undertaker. The close scrutiny of a project proposal should not be repressed merely to the technical, economic and financial feasibility alone, but also sifts through the managerial competence.

The present study has been undertaken to explore the important variables to be considered by development banks while conducting project appraisal of industrial units. The important aspects included are the different variables of project appraisal and the desirability of these variables vis-à-vis their availability. The sampled bankers were requested to opine on some of the important factors forming a part of their premeditated outlook while conducting the project appraisal of industrial units. The main emphasis has been on technical aspects, manufacturing process, technical arrangements, aggregate demand forecasting technique, plan priorities of the country, capital cost of project, sources of finance, financial projections, demand and supply of proposed product, pricing policy, etc. The bankers were also asked to enlighten on a five point scale as to the desirability and availability of certain identified tactical factors for the conduct of

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their business. The main emphasis of this part of the survey was to find a gap between what they think in terms desirability and what is the existing position or availability of such appraisal aspects.

Review of Literature

The researchers studied a lot of literature in order to formulate the problem for present analysis. However, there was hardly any study that could have a direct bearing on the intent and content of the present enquiry. Some of the related studies conducted in the recent past are summarized as follows:

McManus (1981) discussed the four most common methods of financial appraisal in the project evaluation process, viz., the payback period, the return on investment, the net present value and discounted cash flow method.

Berry (1982) concluded that wrong estimation of the project costs could render a unit sick. He, therefore, emphasized on the importance of realistic estimation of project costs.

Krishna (1982) did a detailed review of the appraisal, methodologies and its application in developing countries, viz., India, Tanzania, Turkey and South Korea. She specifically studied the pre-investment analysis and appraisal processes in the project cycle. She concluded that awareness of the role of systematic project planning in the developing countries for achieving long term plan objectives was urgently needed.

Garg (1983) revealed that the performance of the majority of public sector units of Punjab State Industrial Development Corporation was not satisfactory. He found that there was a lack of proper project planning and appraisal in respect of a number of these units.

Sharma (1983) focused on a systematic approach to investment decisions with regard to continuously exploring potential markets for products; reviewing the operating efficiency of existing plants and the need for modernization as well as investigating the potential competition from new products. He also observed that developing a cut-off rate or minimum acceptable rate of return also helps in eliminating unprofitable projects.

According to Nautiyal (1983) faulty project planning,

implementation and bad management are the major causes of industrial sickness in India.

Davar (1984) observed that the financial appraisal includes the profitability estimates as well as scrutiny and examination of cash flow statements for a period of ten years, break even analysis, internal rate of return, sensitivity analysis, etc.

Kuchhal (1984) studied projects of All India Development Banks to ascertain the factors responsible for success and sickness of new projects. He recommended that the use of SWOT analysis, Programme Evaluation and Review Technique and Critical Path Method to be undertaken while examining the viability of the project.

Davar (1984) suggested that financial institutions, instead of prescribing any rigid debt equity mix, the effort should be to match some of the appraisal factors, evaluate these factors and determine the debt equity mix, which is appropriate to the needs of the project.

Rangarajan (1984) felt that proper project appraisal and efficient project formulation and construction help in controlling the project cost and consequently in reduction of capital output ratio.

Roy and Dosaj (1985) found that lack of reliable data hampers the quality of project feasibility reports. Wrong choice of technology, inadequate assessment of raw materials, unsuitable location, uneconomical plant capacity and unwise market projections have been listed as some of the important factors resulting in project failures.

Jain (1986) has enumerated the basic parameters and norms set by financial institutions in order that the same are suitably highlighted in the project report while conducting project appraisal. He is of the view that financial institutions evaluate every investment proposition in relation to certain basic parameters including promoters' capabilities and competence to run the project, financial viability and capacity of the project to repay the loan, its technical and commercial viability etc.

Rajagopalan and Vyasulu (1990) analyzed a project appraisal report of Uttar Pradesh Financial Corporation for sanctioning of term loan and found the present norms based approach with considerable demerits. In his opinion, the most fall outs have been the tendency to cook -up figures to meet the

stipulated norms and unduly over-stressed debt-equity norm.

Cano (1992) emphasized some of the factors that influence project feasibility are originality, ethics, available completion time, labour and other resources, safety technical issues, natural-environment aspects, social benefit, market economic and finance aspects and social and political issues.

Singh and Anand (1992) pointed out that the State level development banks viz; SIDCs and SFCs do not make use of Economic Rate of Return (ERR), Domestic Resource Cost (DRC) and Effective Rate of Protection (ERP) as tools for economic appraisal of industrial projects.

Desikan and Shekar (1992) stressed for a detailed study of the demand and supply pattern of the product to be assessed as undertaken by the promoters to determine the marketability and profitability of their projects.

Anand (1993) found that social cost benefit analysis under a sensitivity analytic framework for project appraisal by SIDCs is feasible, it sharpens the project choice decision and it provides useful information for better project management.

Cracknell (1994) suggested an integrated approach whereby clear need has been to ensure that projects are not only prepared and assessed in a logical way also should cover the key sustainability factors like policy support, appropriate technology, environmental protection measures, etc.

Anand (1994) has found that the project appraisal system of State Industrial Development Corporations (SIDCs) does not involve any formal social cost benefit analysis except for a few statements regarding number of persons employed, location in a backward area or not, import substitution or import promotion. He even concluded that some projects would not have been selected on social desirability criterion if a proper analysis was done by the SIDC.

Rao (1995) observed that after a firm's formal request for long-term debt, the main tool that a financing agency uses to determine a firm's ability to make timely payments of principal and interest is a financial statement analysis, especially a ratio analysis with special emphasis that relates income and cash flows in addition to operating profit margins, return on capital and return on total assets.

Kumar (1996) has attempted to understand the social cost as applicable to a business undertaking while undertaking appraisal of projects. Social cost and benefit for appraisal of project have assumed significant importance with the altered industrial policy of the country. He is of the view that broad guidelines should be made for identification of social costs and level of benefits expected should also be indicated.

Maitra (1997) stated that, typically, large projects suck funds in the first few years and churn out regular cash flows later. The rule of thumb when deciding the financing mix that best accommodates the project profile; the bigger the project, the bigger should be the share of debt financing since equity is permanent liability while debt can be paid off.

Chakravorthy (1997) suggested that the financial institution must evaluate cash flow risks, forcing them to be more involved in the day-to-day operations of the borrow.

Ramanathan (1997) discussed the principles, methodology and the relative merits and demerits of the various project evaluation methods. These methods vary based on their incorporation of the time value of money and by their end objectives; a proper selection of methods is a necessity for structured decision making

Aftab Ahmed Khan (1999) has advocated the use of three main tools that are benefit - cost ratio, net present worth and internal rate of return, for carrying out financial and economic analysis.

Majumder (2000) observed that performance of State financial corporation is declining and factors contributing to it are, loan being extended to priority sector where inherent risk of failure is present, lack of effective legal mechanism to recover the dues, high cost of borrowings, stiff competition from the banks and refinancing institutions.

Bajpai (2000) outlined an approach for evaluating financial and economic appraisal of investments and observed that cash inflows and outflows were identified in a typical situation and then sensitivity and scenario analysis is made by making changes in some of the key variables.

Darzi (2006) concluded that financial institutions do not lay the requisite emphasis on the appraisal of

managerial resources of the promoters. His study revealed that the quantifiable aspects are analyzed by the appraisal officers; however, the analysis is carried out where the promoters have willfully provided the information in the loan applications.

Research Objectives

The major objective of the present work is to analyse the development bankers' perspectives on the extent of the desirability and the availability of appraisal aspects crucial for carrying out the project appraisal. The specific objectives are:

1) To identify important key variables that in the opinions of the bankers are desirable and available for effective project appraisal being conducted by the development banks.

2) To carry out a gap analysis of the desirability and availability of the strategic project appraisal factors and then assess the significance of the difference between the two.

Research Methodology

The study is based on the primary data collected by way of administering a structured questionnaire to the bank officers who were purposively sampled from the development banks falling in the Haryana state. The officers operating at appraisal division as project appraisal officers were contacted for the purpose of filling the questionnaires as the subject of the study is such that the respondents should have some background in project appraisal and its implications for the development banks. Even though the questionnaires were administered to 40 officers, the usable response was received from 34 respondents resulting into a response rate of 85 per cent.

The survey schedule included 49 factors on project appraisal practices being followed by development banks in Haryana, each of which was got ranked by the respondent bank officers on a five point scale. The questionnaire also sought their assessment of the desirability and the availability of different strategic variables in comparative form so as to ascertain the gap between the two. Accordingly, the data so collected have been analysed in three parts:

(i) Factor analysis of bankers' opinions regarding the extent of desirability of identified key appraisal aspects.

(ii) Factor analysis of bankers' opinion regarding the extent of availability of identified appraisal aspects, and

(iii) Bankers average perspective on the gap between desirability and availability of appraisal aspects.

In the first part, nine important aspects have been identified through Principal Component Analysis, while in second part also, nine such aspects have been extracted through the same process as are desirable from the standpoint of appraisal practice necessary to be followed while appraising the project under consideration. Having analysed the bankers' perception about the extent of desirability and availability, separately, an attempt has been made to assess a gap between the two. Accordingly, the means of desirability and availability responses for the total samples were separately worked out so as to find the difference. The correlation between desirability and availability are also worked out and their significance is tested via t-test value.

Analysis and Interpretation

As brought out above, the analysis has been carried out in three sub-sections subsequently.

Factor Analysis of Desirability of Strategic Factors
This section subjects to factor analysis of the bankers' responses as to the desirability of the identified project appraisal aspects. The analysis yielded nine (9) factors with Eigen values greater then 1.00. The Eigen values along with percent variance accounted by each factor and the cumulative percentages of the variance are exhibited in Table 1. An examination of this table reveals that the set of extracted nine (9) factors explains 86.55 percent of the total variance covered by the variables forming part of this enquiry. It can be held as a satisfactory amount of variance accounted for by the factor analysis. To achieve an approximation to sample structure the extracted factors were rotated in accordance with the Kaiser's normalization method. The Varimax rotated factor structure is also presented in Table 1.

Table 1: Varimax Rotated Factor Matrix for Bankers Perspective on Desirability of Project Appraisal Factors

Variable	Factors									h2
No.	1	2	3	4	5	6	7	8	9	
1	0.543	-0.365	-0.183	0.225	0.011	-0.046	0.376	-0.024	0.313	0.843
2	-0.129	-0.265	-0.115	0.383	0.210	0.383	0.177	-0.562	-0.231	0.916
3	0.322	-0.240	0.242	0.157	0.237	0.306	0.712	-0.123	0.067	0.979
4	0.176	-0.026	-0.047	0.433	0.070	0.236	0.731	0.081	-0.220	0.937
5	-0.018	0.001	0.319	-0.095	-0.031	-0.027	-0.198	0.663	-0.337	0.849
6	0.048	-0.316	-0.026	-0.259	0.039	-0.149	-0.131	0.757	0.120	0.815
7	0.181	-0.508	0.153	-0.481	-0.131	-0.198	0.271	0.442	0.027	0.941
8	0.348	-0.123	0.148	0.218	0.094	-0.078	0.097	0.730	-0.124	0.855
9	0.229	0.116	-0.070	-0.058	-0.103	0.156	-0.014	-0.865	0.140	0.894
10	-0.018	0.526	0.314	-0.043	-0.235	0.280	0.024	-0.205	0.058	0.938
11	-0.120	0.713	-0.222	-0.020	0.237	0.319	-0.027	-0.163	0.092	0.951
12	0.089	0.056	0.015	-0.392	-0.062	0.830	0.136	-0.065	-0.099	0.897
13	0.081	0.062	0.234	0.270	-0.006	0.736	0.082	-0.118	0.284	0.898
14	0.412	-0.455	-0.021	-0.074	0.036	0.373	-0.475	0.308	0.009	0.910
15	0.231	-0.349	-0.131	0.111	0.208	0.703	-0.076	-0.128	0.160	0.923
16	0.136	-0.340	0.122	0.048	0.233	0.387	-0.552	-0.166	0.170	0.927
17	-0.061	0.935	-0.129	-0.208	-0.008	0.075	-0.011	-0.072	-0.002	0.974
18	0.135	0.757	0.002	0.257	0.272	-0.038	0.255	-0.283	0.173	0.948
19	0.088	0.888	-0.033	-0.199	0.168	-0.027	-0.062	-0.134	-0.038	0.932
20	0.024	0.823	0.180	-0.031	0.215	-0.126	0.048	0.081	-0.131	0.954
21	-0.340	0.873	-0.012	-0.063	0.032	0.003	-0.029	0.160	-0.100	0.928
22	0.920	0.128	0.007	0.059	0.097	0.109	0.149	0.189	0.076	0.962
23	0.920	0.128	0.007	0.059	0.097	0.109	0.149	0.189	0.076	0.962
24	0.893	-0.012	-0.028	0.147	0.163	-0.122	-0.172	-0.141	-0.180	0.955
25	0.802	-0.192	0.229	-0.151	-0.027	0.137	0.119	0.163	0.307	0.921
26	0.802	-0.385	0.317	-0.076	0.083	0.080	-0.165	-0.081	0.184	0.978
27	0.802	-0.385	0.317	-0.076	0.083	0.080	-0.165	-0.081	0.184	0.978
28	0.130	0.316	0.069	0.365	0.020	0.598	0.118	-0.057	0.030	0.929
29	-0.063	0.221	0.351	0.093	0.123	0.622	-0.010	-0.157	0.263	0.948
30	-0.088	-0.831	0.087	-0.178	-0.231	0.128	0.012	0.140	-0.221	0.926
31	0.254	-0.231	0.547	-0.020	0.097	-0.095	-0.614	0.178	0.092	0.876
32	0.134	-0.570	0.163	0.473	0.216	0.110	-0.376	0.119	0.262	0.930
33	0.210	-0.016	0.208	-0.021	0.168	0.205	-0.107	-0.054	0.828	0.914
34	0.392	-0.234	-0.015	-0.061	0.328	0.084	-0.286	-0.066	0.714	0.956
35	-0.026	-0.137	-0.133	0.850	0.065	-0.053	0.079	-0.110	-0.135	0.910
36	-0.087	0.018	-0.092	0.933	-0.013	-0.035	0.203	0.011	0.082	0.947

37	0.148	-0.241	-0.062	0.891	0.063	0.057	0.111	-0.132	-0.027	0.947
38	0.000	0.153	0.233	0.028	0.896	0.180	0.065	-0.065	0.162	0.953
39	0.043	0.175	0.211	0.069	0.900	0.162	0.029	-0.074	0.205	0.991
40	0.229	0.105	0.154	0.123	0.877	-0.174	0.061	0.211	-0.066	0.962
41	-0.164	-0.117	0.226	0.289	0.288	0.093	0.626	-0.191	-0.418	0.948
42	0.644	-0.062	0.447	0.045	-0.109	0.038	-0.025	0.083	0.229	0.811
43	0.057	-0.016	0.857	-0.033	0.141	0.057	0.179	0.318	0.099	0.954
44	0.354	0.368	0.226	0.059	0.507	-0.208	0.559	-0.003	0.052	0.937
45	0.598	0.061	-0.168	-0.125	0.494	-0.095	0.066	0.533	-0.071	0.962
46	0.641	0.199	0.024	-0.228	-0.196	0.112	0.082	0.249	-0.141	0.973
47	0.336	-0.128	0.884	-0.083	0.152	0.063	0.042	-0.055	0.049	0.982
48	0.044	-0.114	0.764	-0.230	0.371	-0.062	-0.062	0.202	-0.145	0.975
49	0.067	0.260	0.641	-0.124	0.356	0.312	-0.068	-0.236	0.110	0.798
Eigen Values	10.292	7.426	6.073	4.975	4.148	3.465	2.544	2.084	1.404	
Percent Var.	21.003	15.156	12.393	10.153	8.466	7.072	5.192	4.252	2.865	
Cum Percent	21.003	36.159	48.552	58.705	67.171	74.243	79.435	83.688	86.553	

Extraction Method: Principal Component Analysis, Rotation Method: Varimax with Kaiser Normalization

The percent variance explained for each of the extracted factors is given along with the commonalities (h2), which give the proportion of variance, explained in each variable by the factors, are inserted in the last column of the rotated matrix (Table 1). The values of h2 fall in the range of 0.798 minimum and 0.991 maximum for the different variables. A further scrutiny of the table reveals that majority of the h2 values are more than 0.80 which point to the fact that the factor analysis has extracted good amount of variance in the variables. The loadings equal to and greater than 0.35 are considered significant for identification of the variables forming the factors.

Description of factors

In all, the principal component analysis has extracted nine (9) factors out of the 49 variables(numbered 1 to 49). The serial numbers of the variables given in the table correspond to those given in the questionnaire. Each of these factors is described as follows:

(i) Financial Aspects (F-1): The instant factor explains 21.003 percent of the total variance (Table 1) and it loads significantly on the ten (10) variables listed in the Table 2.

Table 2 : Finance Aspects (F-1)

S.No.	Variables	Factor Loadings
1	Manufacturing process/technology	0.543
22	Capital cost of project	0.920
23	Sources of finance	0.920
24	Financial projections	0.893
25	Ratio analysis	0.802
26	Break even point	0.802
27	Discounted cash flow techniques	0.802
42	Profitability	0.644
45	Financial resources	0.598
46	Competence	0.641

The table under examination reveals that the highest factor loading (0.920) is on 'capital cost of project' and 'sources of finance', closely followed

by 'financial projections' (0.893), 'ratio analysis' (0.802), 'break-even point' (0.802), and 'discounted cash flow techniques'(0.802).

The other variables having equally significant loading in a descending order are: profitability, competence, financial resources and manufacturing process/ technology. It can be observed from the nature of these variables that some of them bear a close relationship with each other, while some fall apart. The one appearing to fall apart is competence. This can be attributed to the unaccounted variance or due to the respondents' lack of understanding of the concepts envisaged in the survey schedule. In any case, the most of the variables go so closely with each other that this factor can be titled as financial aspect.

(ii) Market and Forecasting Techniques Aspects (F-2): This factor explains 15.156 percent of the variance (Table 1). It loads significantly on the eleven (11) variables, mentioned in Table 3.

Table 3: Market and Forecasting Techniques Aspects (F-2)

S.No.	Variables	Factor Loadings
7	Plant layout	-0.508
10	Proximity to raw material	0.526
11	Proximity to market	0.713
14	Effluent disposal	-0.455
17	Import substitution	0.935
18	Past trend method	0.757
19	End use method	0.888
20	Correlation and regression	0.823
21	Export market	0.873
30	Life cycle of the product	-0.831
32	Distribution charges	-0.570

An inspection of the table reveals that the highest factor loading (0.935) is on 'import substitution'. The 'end use method' (0.888) and 'export market' (0.873) and 'correlation and regression' (0.823) are equally significant variables having high factor loadings. The variable 'life cycle of the product' is no less important either, though it is bearing a negative factor loading (-0.831). In view of the close association of the variables and their more or less equally high loadings this factor can be designated as 'marketing and forecasting techniques aspect'.

(iii) Management Aspects (F-3): This factor explains 12.393 percent of the variance (Table 1). It loads significantly on the four (4) variables, mentioned in Table 4.

Table 4: Management Aspect (F-3)

S.No.	Variables	Factor Loadings
43	Character	0.857
47	Initiative	0.884
48	Intelligence	0.764
49	Patience	0.641

The table under examination reveals that the highest factor loading (0.884) is on 'initiative', closely followed by 'character' (0.857), 'intelligence' (0.764) and 'patience'(0.641).Most of the variables go so closely with each other that this factor can be titled as management aspects.

(iv) Economic Aspect (F-4): This factor explains 10.153 percent of the variance (Table 1). It loads significantly on the three (3) variables, mentioned in Table .

Table 5: Economic Aspect (F-4)

S.No.	Variables	Factor Loadings
35	Import substitution	0.850
36	Possible export market	0.933
37	Past trend of the industry	0.891

The table under examination reveals that the highest factor loading (0.933) is on 'possible export market', closely followed by 'past trend of the industry' (0.891), 'import substitution' (0.850). It can be observed from the nature of these variables that some of them bear a close relationship with each other. Thus this factor can be titled as economic aspects.

(v) National Resources Aspect (F-5): This factor explains 8.466 percent of the variance (Table 1). It loads significantly on the three (3) variables, mentioned in Table 6.

Table 6: National Resources (F-5)

S.No.	Variables	Factor Loadings
38	Plan priorities of country	0.896
39	Needs of the state	0.900
40	Resources of the state	0.877

The table under examination reveals that the highest factor loading (0.900) is on 'needs of the state',

closely followed by 'plan priorities of the country' (0.896) and 'resources of the state' (0.877). The variables go so closely with each other that this factor can be titled as national resources aspect.

(vi) Demand and Supply (F-6): This factor explains 7.702 percent of the variance (Table 1). It loads significantly on the five (5) variables, mentioned in Table 7.

Table 7: Demand and Supply (F-6)

S.No.	Variables	Factor Loadings
12	Availability of labour	0.830
13	Utilities such as water, power, fuel etc.	0.736
15	Transport and communication facilities	0.703
28	Demand and supply of proposed product	0.598
29	Pricing policy	0.622

The table under examination reveals that the highest factor loading (0.830) is on 'availability of labour', closely followed by 'utilities such as water, power, fuel etc.' (0.736), 'transport and communication facilities' (0.703), 'pricing policy' (0.622), and 'demand and supply of proposed product' (0.598). The most of the variables go so closely with each other that this factor can be titled as demand and supply.

(vii) Product Mix and Other Facilities (F-7): This factor explains 5.192 percent of the variance (Table 1). It loads significantly on the six (6) variables, mentioned in Table 8.

Table 8: Product Mix and Other Facilities (F-7)

S.No.	Variables	Factor Loadings
3	Size of the plant	0.712
4	Product mix	0.731
16	Facilities for setting up industries in backward areas	-0.552
31	Packing and transportation aspect	-0.614
41	Banned list items	0.626
44	Involvement in the project	0.559

A perusal of the table under examination discerns that the factor bears loads almost equally on the product mix and size of the plant. The packing

and transportation aspect (-0.614) and facilities for setting up industries in backward areas with factor loading of -0.552 also goes well with the factor and hence can be designated as 'product mix and other facilities' However, the other two variables, banned list items and involvement in the project are not in apparent consort with the factor. The loading of these variables may be attributed to the unaccounted variance by the other factors.

(viii) Locational Aspect of the Project (F-8): The present factor accounted for 4.252 percent of the variance (Table 1) and loads heavily on the five (5) different variables, listed in Table 9.

Table 9: Locational object of the product (F-8)

S.No.	Variables	Factor Loadings
2	Technical arrangements	-0.562
5	Selection of plant and machinery	0.663
6	Procurement of plant and machinery	0.757
8	Locational aspects of the project	0.730
9	Land	-0.865

A perusal of the table reveals that the factor loads most prominently on 'land' followed by 'procurement of plant and machinery' and 'locational aspect of the project'. These variables are expected to contribute significantly to location of the project. The other variables with high loadings are 'selection of plant and machinery' and 'technical arrangements'. These variables also go with the factor as they contribute significantly to locational aspect of any project being financed. As perceived by the respondent bankers, these variables are available simultaneously in their banks.

(ix) Advertising and Sales Promotion Aspects (F-9): This factor explains 2.865 percent of the variance (Table 1). It loads significantly on the two (2) variables, mentioned in Table 10.

Table 10: Advertising and Sales Promotion Aspects (F-9)

S.No.	Variables	Factor Loadings
33	Sales promotion of the product	0.828
34	Advertisement and servicing	0.714

The table shows that 'sales promotion of the product' has the highest loading (0.828) for this factor and this is followed by the variable 'advertising and servicing

'with a loading of (0.714). A careful examination of the variables reveals that they are intimately connected and as such go with the factor. In other words, the development banks while appraising the project for the purpose of financing it, must concentrate on advertising and sales promotion methods of the industrial unit.

Factor Analysis of Availability of Project Appraisal aspects

The present section examines as to how the appraisal officers feel that the loan appraisal factors are available or are in existence. The appraisal officers' responses as to the availability of the identified factors are also subjected to Factor analysis. The analysis yielded nine (9) factors with Eigen values greater than 1.00. The Eigen values along with

percent variance accounted for by each factor and the cumulative percentages of the variance are exhibited in Table 11. An examination of this table reveals that the set of extracted nine (9) factors explains 83.227 percent of the total variance covered by the variables forming part of this study. This is a pretty good bargain, because we are able to economise on the number of variables (from 49 we have reduced them to 9 underlying factors), while we lost only about 17 percent of the information content (83 percent is retained by the 9 factors extracted out of the 49 original variables)

Table 11: Varimax Rotated Factor Matrix for Bankers Perspective on Availability of Project Appraisal Factors

Variable No.	Factors									h2
	1	2	3	4	5	6	7	8	9	
1	-0.115	0.356	0.277	-0.102	-0.076	-0.085	0.043	0.705	-0.033	0.955
2	0.155	0.821	0.193	0.098	0.123	-0.141	-0.073	-0.054	-0.270	0.906
3	0.216	-0.074	0.002	0.019	-0.281	0.283	0.722	-0.206	0.032	0.902
4	-0.216	0.054	-0.142	-0.618	0.070	0.146	0.347	0.015	0.247	0.963
5	0.061	-0.337	0.122	0.137	-0.079	0.238	-0.016	0.020	0.626	0.927
6	0.211	-0.403	0.016	0.020	0.162	0.233	-0.247	0.367	0.619	0.967
7	0.059	-0.135	-0.182	-0.051	0.006	-0.129	0.013	0.135	0.934	0.973
8	0.149	-0.198	-0.066	-0.035	-0.056	-0.163	-0.162	0.124	0.823	0.853
9	0.564	-0.200	0.148	-0.229	-0.043	0.076	0.220	-0.072	0.198	0.919
10	0.242	-0.033	-0.231	-0.056	0.888	-0.001	0.090	-0.032	-0.098	0.947
11	0.735	0.147	0.276	-0.111	0.182	-0.234	0.165	-0.039	-0.006	0.939
12	-0.060	-0.341	-0.249	-0.249	0.322	0.424	0.218	0.152	0.529	0.946
13	0.064	-0.110	0.203	-0.140	0.188	0.072	0.016	0.858	0.027	0.932
14	0.125	-0.339	0.061	-0.135	0.072	0.206	-0.186	0.689	0.281	0.906
15	0.282	-0.210	-0.008	-0.044	-0.136	0.058	-0.172	0.373	0.761	0.951
16	0.285	-0.054	-0.129	0.103	-0.165	-0.219	0.249	0.743	0.118	0.934
17	-0.264	0.012	0.189	0.224	0.769	0.131	-0.354	0.113	0.063	0.967
18	-0.097	0.280	0.645	0.028	0.311	-0.109	0.157	-0.242	0.023	0.947
19	-0.152	0.267	0.520	-0.031	0.582	0.121	-0.203	-0.058	-0.044	0.913
20	-0.153	-0.150	0.291	0.072	0.800	-0.164	-0.202	0.064	0.152	0.967
21	-0.278	-0.224	0.644	-0.161	0.264	-0.169	-0.407	0.024	0.102	0.899
22	0.881	0.074	0.096	-0.233	-0.005	0.265	0.021	0.043	0.089	0.958
23	0.530	0.008	0.465	-0.220	0.231	0.134	0.244	-0.027	-0.245	0.944
24	0.837	0.164	-0.072	0.104	-0.074	0.055	-0.046	0.152	-0.116	0.928
25	0.848	-0.028	-0.013	0.167	-0.315	-0.075	-0.108	0.095	0.176	0.955
26	0.741	-0.052	-0.206	0.388	-0.190	-0.076	0.002	0.098	0.256	0.956
27	0.765	0.257	0.017	0.246	0.383	0.032	0.009	0.283	0.065	0.995

28	-0.303	0.342	0.351	0.078	0.206	0.642	-0.086	-0.271	-0.141	0.962
29	-0.160	0.196	0.044	0.618	0.343	0.631	-0.068	-0.079	-0.022	0.990
30	-0.027	0.583	0.535	0.028	0.017	0.298	0.275	-0.116	0.302	0.976
31	-0.059	0.202	0.158	0.819	0.152	0.111	0.168	-0.230	0.062	0.879
32	-0.108	0.294	-0.025	0.753	-0.073	0.293	-0.134	0.231	0.094	0.939
33	0.225	0.541	0.254	0.604	0.003	0.049	-0.067	0.023	-0.250	0.975
34	0.362	0.570	0.248	0.563	0.047	0.074	-0.066	-0.120	-0.182	0.974
35	0.091	0.896	-0.114	0.225	0.031	0.135	-0.021	-0.085	-0.038	0.987
36	0.012	0.899	0.076	0.199	-0.100	-0.100	0.102	-0.076	0.000	0.958
37	0.047	0.603	0.124	-0.073	-0.361	0.069	0.120	-0.174	-0.035	0.888
38	0.143	0.116	0.927	0.208	-0.106	0.068	0.006	0.125	0.023	0.988
39	0.249	0.206	0.702	0.355	-0.087	-0.171	0.180	0.232	-0.125	0.997
40	0.199	0.425	0.401	0.272	0.084	0.101	0.155	0.112	0.566	0.881
41	0.056	-0.018	0.077	-0.184	-0.102	0.000	0.879	0.080	-0.195	0.945
42	0.467	0.045	-0.068	0.663	-0.067	0.039	0.166	-0.044	0.255	0.925
43	0.020	-0.276	-0.139	-0.144	-0.092	0.877	0.106	0.155	0.021	0.938
44	-0.175	0.178	-0.053	0.187	0.079	0.033	0.795	0.202	-0.063	0.929
45	0.162	0.369	-0.425	0.172	-0.259	0.286	0.387	0.453	0.047	0.982
46	-0.026	0.122	-0.265	0.028	-0.212	0.604	-0.187	0.148	-0.392	0.900
47	0.409	-0.042	-0.105	0.112	0.011	0.782	0.170	0.192	0.102	0.916
48	0.050	-0.299	0.101	0.253	-0.286	0.742	0.284	-0.055	0.069	0.926
49	0.016	0.007	-0.148	-0.064	0.225	0.549	-0.595	0.143	-0.156	0.941
Eigen Values	9.355	7.740	5.374	4.551	3.845	3.051	2.412	2.306	2.148	
Percent Var	19.091	15.796	10.967	9.288	7.847	6.227	4.921	4.706	4.384	
Cum Percent	19.091	34.887	45.854	55.142	62.989	69.216	74.137	78.844	83.227	

The percent variance explained for each of the extracted factors and the commonalities (h2), which give the proportion of variance explained in each variable by the factors, are given in the rotated matrix table (Table 11). The values of h2 for the different variables range from 0.853 (minimum) to 0.997 (maximum). A further scrutiny of the table reveals that majority of the h2 values are more than 0.90 which point to the fact that the factor analysis has extracted good amount of variance in the variables. The loadings equal to and greater than 0.35 are considered significant for identification of the variables forming the factors.

Description of factors

(i) Financial Aspects (F-1): This principal component factor regarding appraisal officers' perception on availability of loan appraisal aspects accounted for 19.091 percent of the total variance (Table 12). It loads significantly on the variables listed in Table (12).

Table 12 : Finance Aspects (F-1)

S.No.	Variables	Factor Loadings
9	Land	0.564
11	Proximity to market	0.735
22	Capital cost of project	0.881
23	Sources of finance	0.530
24	Financial projections	0.837
25	Ratio analysis	0.848
26	Break even point	0.741
27	Discounted cash flow techniques	0.765

Inspection of factors loadings for this factor reveals that the highest factor loading is on the 'capital cost of the project' (0.881), followed by 'ratio analysis' with a loading of 0.848 , 'financial projections' (0.837) and 'discounted cash flow techniques' (0.765). The other variables like 'break-even point', 'proximity to market' and 'sources of finance' also have equally high and positive loadings. However, the other variable 'land' is not in apparent consort with factor.

The loadings of these variables may be attributed to the unaccounted variance by the other factors. Considering the nature and high loadings of the variables for this factor, it can suitably be titled as financial aspects

(ii) Product and Promotion Aspects (F-2): The present factor accounted for 15.796 percent of the total variance (table 11) and loads significantly on the six (6) variables, mentioned in Table 13.

Table   13: Product and Pramotion Aspects (F-2)

S.No.	Variables	Factor Loadings
2	Technical arrangements	0.821
30	Life cycle of the product	0.583
34	Advertisement and servicing	0.570
35	Import substitution	0.896
36	Possible export market	0.899
37	Past trend of the industry	0.603

A glance over the table shows that the variable availability of 'possible export market' accounts for the highest loading (0.899) for this factor. This is followed by two important variables having equally high and positive loadings for this factor. These are 'import substitution' and 'technical arrangements'. These two variables go well with the factoring that, as expressed by the respondents. Yet there are   three other variables with positive loadings, though relatively on lower side, for this factor. These are: 'past trend of the industry', 'life cycle of the product' and 'advertising and servicing'. These variables also complement the factor as well as other variables having significant loading on them. It needs mention that product and promotion services call for professionalism, knowledge of market so as to identify those who need the products and then promoting these products to those proposed customers.

(iii) Plan Priority of the Country (F-3): This principal component of factor analysis garnered 10.967 of the total variance (Table 11). The factor loads significantly on the four variables enumerated in Table 14.

Table   14: Plan Priority of The Country (F-3)

S.No.	Variables	Factor Loadings
18	Past trend method	0.645
21	Export market	0.644
38	Plan priorities of country	0.927
39	Needs of the state	0.702

A perusal of the table under examination discerns that the factor bears loads significantly on the plan priorities of the country, closely followed by 'needs of the state' at a factor loading of (0.702). The 'past trend method' and 'export market' also goes well with the factor with factor loading of (0.645) and (0.644) simultaneously. Considering the nature and high loadings of the variables for this factor, it can suitably be titled as 'plan priority of the country'.

(iv) Packaging and Transportation Aspects (F-4): In so far as the availability of packaging and transportation is concerned the respondents have given a very high place on the five point scale to this variable. The resultant factor account for 9.288 percent of the total variance (Table 11) and loads significantly on the five different variables (Table15).

Table 15: Packaging and Transportation Aspects (F-4)

S.No.	Variables	Factor Loadings
4	Product mix	-0.618
31	Packing and transportation aspect	0.819
32	Distribution charges	0.753
33	Sales promotion of the product	0.604
42	Profitability	0.663

An inspection of the table reveals that the highest factor loading (0.819) is on 'packing and transportation aspect', followed closely by 'distribution charges' (0.753). The product mix (-0.618) and sales promotion of the product (0.604) are equally significant variables having high factor loadings on this factor. However, variable profitability though with a high and positive factor loading does not go well with the factor. This can be attributed to the unaccounted variance or due to the respondents' lack of understanding of the concepts envisaged in the survey schedule.

In view of the close association of the variables and their more or less equally high loadings this factor can be designated as 'packaging and transportation aspects'.

(v) Demand Forecasting Techniques (F-5): This principal component of factor analysis acquires 7.847 of the total variance (Table 11). The factor loads

significantly on the four (4) variables enumerated in Table 16.

Table 16: Demand Forecasting Techniques (F-5)

S.No.	Variables	Factor Loadings
10	Proximity to raw material	0.888
17	Import substitution	0.769
19	End use method	0.582
20	Correlation and regression	0.800

The table under examination reveals that the highest factor loading (0.888) is on 'proximity to raw material', closely followed by 'correlation and regression' (0.800). The third and fourth variable are: 'import substitution' with a factor loading of (0.769) and 'end use method' with a factor loading of (0.582). A careful examination of the variables reveals that they are intimately connected and as such go with the factor. In other words development banks are using various demand forecasting technique in order to know the demand potential of the project to be appraised.

(vi) Management Aspects (F-6): The instant factor explains 6.227 percent of the total variance (Table 11) and it loads significantly on the six (6) variables listed in the Table17.

Table 17: Management Aspects (F-6)

S.No.	Variables	Factor Loadings
28	Demand and supply of proposed product	0.642
29	Pricing policy	0.631
43	Character	0.877
46	Competence	0.604
47	Initiative	0.782
48	Intelligence	0.742

The table under examination reveals that the highest factor loading (0.877) is on 'character', closely followed by 'initiative' (0.782), 'intelligence' (0.742) and 'competence' (0.604). It can be observed from the nature of these variables that some of them bear a close relationship with each other, while some fall apart. The ones appearing to fall apart are 'demand and supply of the proposed product', and 'pricing policy'. This can be attributed to the unaccounted variance or due to the respondents' lack of understanding of the concepts envisaged in the survey schedule. In any case, the most of the variables go so closely with each other that this factor can be titled as management aspects.

(vii) General Aspects (F-7): The present factor explains only 4.921 percent of the total variance (Table 11) and it loads significantly on the four variables listed in the table 18.

Table 18: General Aspects (F-7)

S.No.	Variables	Factor Loadings
3	Size of the plant	0.722
41	Banned list items	0.879
44	Involvement in the project	0.795
49	Patience	-0.595

A careful examination of the factor loadings and their values set out in the table discerns that 'banned list items' stands out clearly ahead of others in terms of the highest loading (0.879). This is followed by 'involvement in the project' (0.795) and 'size of the plant' (0.722) which is almost alike in terms of the values of their factor loadings. The other significant variable is 'patience' with a negative factor loading of (-0.595). All these variable can collectively be designated as 'general aspects'.

(viii) Commercial Aspects (F-8): The present factor explains only 4.706 percent of the total variance (Table 11) and it loads significantly on the five variables listed in the table 19.

Table 19: Commercial Aspects (F-8)

S.No.	Variables	Factor Loadings
1	Manufacturing process/technology	0.705
13	Utilities such as water, power, fuel etc.	0.858
14	Effluent disposal	0.689
16	Facilities for setting up industries in backward areas	0.743
45	Financial resources	0.453

Inspection of factors loadings for this factor reveals that the highest factor loading is on the 'utilities such as water, fuel, power, fuel etc.'(0.858), followed by 'facilities for setting up industries in backward areas' (0.743) and 'manufacturing process/ technology' (0.705). Effluent disposal and financial resources also loads significantly for this factor. Considering the nature and high loadings of the variables for this factor, it can be suitably titled as 'commercial

aspect'. Analysis of this factor bring out that the respondents while appraising the project must give attention to commercial aspects akin to various public utilities , effluent disposal, facilities for setting up industry in backward areas, manufacturing process and financial resources.

(ix) Project and Plant Aspects (F-9): The present factor accounted for 4.384 percent of the total variance (Table 11) and loads heavily on the seven different variables listed in the Table 20.

Table 20: Project and Plant Aspects (F-9)

S.No.	Variables	Factor Loadings
5	Selection of plant and machinery	0.626
6	Procurement of plant and machinery	0.619
7	Plant layout	0.934
8	Locational aspects of the project	0.823
12	Availability of labour	0.529
15	Transport and communication facilities	0.761
40	Resources of the state	0.566

A glance over the table shows that the variable availability of 'plant layout' accounts for the highest loading (0.934) for this factor. This is followed by four important variables having equally high and positive loadings for this factor. These are 'locational aspect of the project', 'transport and communication facilities', 'selection of plant and machinery' and 'procurement of plant and machinery'. All the four variables go well with the factor in that, as expressed by respondents, the appraisal procedure of the development banks is complemented by layout of the plant, followed by selection and procurement of plant machinery. Yet there are two other variables with positive loadings, though relatively on lower side, for this factor. These are: resources of the state and availability of labour. These variables also complement the factor as well as other variables having significant loading on them.

The description of the factor states that the bankers while conducting appraisal of the project for the purpose of sanctioning loan to them attach importance to financial aspects, product and promotion aspect, plan priority of the country, packaging and transport aspect, demand forecasting techniques, management aspect, commercial and project and plant aspect.

5.3 Desirability-Availability Gap of Loan Appraisal Aspects

Having analysed the appraisal officers' perception about the extent of desirability and availability separately, an attempt has been made to assess a gap between the two. Accordingly the means of desirability and availability responses for the total samples were separately worked out so as to find the difference. The correlation between desirability and availability are also worked out and their significance tested via t-test value (Table 21).

Table -21 Bankers' Average Perspective on Desirability-Availability Gap of Loan Appraisal Aspects

S.No. Variables
Mean of
Mean of
rMeant-value
Significance

The table under reference offers very interesting and important results. Mere cursory glance on the table shows that mean availability is higher than the mean of desirability for each of the factor and as such the mean differences are negative.

Further t-test was applied to test the null hypothesis that there is no significant difference in the means of desirability and availability. Interestingly almost all t-values for the forty nine variables were found significant at five percent level, which means the difference is significant and the null hypothesis stands rejected.

The correlation coefficient for seeing the relationship between desirability and availability are also worked out for each of the loan appraisal aspect. The null hypothesis that there is no relationship between desirability and availability, also stands rejected in the case of thirty one variables. For the ten factors the values of r are found insignificant. The values of r for the variables bearing serial numbers 36, 44, 46 and 48 and 8 are significant at 1 percent level. In case of the variables bearing serial number 3, 4, 5, 6, 7, 8, 10, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27,

Desirability		Availability		Difference		(2 tailed)	
1	Manufacturing process/technology	1.174	1.522	-0.014	-0.348	-2.166**	0.036
2	Technical arrangements	1.348	1.739	0.356	-0.391	-2.095**	0.042
3	Size of the plant	1.739	2.217	0.689**	-0.478	-2.512**	0.016
4	Product mix	1.783	2.261	0.557**	-0.478	-2.096**	0.042
5	Selection of plant and machinery	1.435	1.913	0.653**	-0.478	-2.735*	0.009
6	Procurement of plant and machinery	1.652	1.957	0.7**	-0.304	-1.290	0.204
7	Plant layout	1.739	2.174	0.567**	-0.435	-1.793	0.080
8	Locational aspects of the project	1.522	1.870	0.704**	-0.348	-1.586	0.120
9	Land	1.174	1.217	0.256	-0.043	-0.322	0.749
10	Proximity to raw material	1.522	1.826	0.544**	-0.304	-1.765	0.084
11	Proximity to market	1.478	1.913	0.143	-0.435	-2.655*	0.011
12	Availability of labour	1.783	2.087	0.259	-0.304	-1.998**	0.052
13	Utilities such as water, power, fuel etc.	1.652	2.000	0.155	-0.348	-2.152**	0.037
14	Effluent disposal	1.739	2.087	0.293	-0.348	-1.588	0.119
15	Transport and communication facilities	1.957	2.391	0.170	-0.435	-2.412**	0.020
16	Facilities for setting up industries in backward areas	2.000	2.435	0.229	-0.435	-2.328**	0.025
17	Import substitution	2.957	3.391	0.847**	-0.435	-1.467	0.149
18	Past trend method	2.478	2.913	0.923**	-0.435	-1.362	0.180
19	End use method	3.130	3.391	0.846**	-0.261	-0.951	0.347
20	Correlation and regression	3.435	3.783	0.655**	-0.348	-1.490	0.143
21	Export market	3.130	3.478	0.808**	-0.348	-1.175	0.246
22	Capital cost of project	1.087	1.217	0.586**	-0.130	-1.225	0.227
23	Sources of finance	1.087	1.522	0.254	-0.435	-3.162*	0.003
24	Financial projections	1.130	1.348	0.53**	-0.217	-1.748	0.087
25	Ratio analysis	1.217	1.565	0.685**	-0.348	-1.983**	0.054
26	Break even point	1.304	1.652	0.78**	-0.348	-1.746	0.088
27	Discounted cash flow techniques	1.304	2.087	0.668**	-0.783	-3.542*	0.001
28	Demand and supply of proposed product	1.565	2.087	0.743**	-0.522	-2.325**	0.025
29	Pricing policy	2.044	2.435	0.69**	-0.391	-1.496	0.142
30	Life cycle of the product	3.130	2.609	-0.063	0.522	0.922	0.362
31	Packing and transportation aspect	2.261	2.696	0.400	-0.435	-2.226**	0.031
32	Distribution charges	2.304	3.044	0.410	-0.739	-3.152*	0.00
33	Sales promotion of the product	1.913	2.522	0.658**	-0.609	-2.363**	0.023
34	Advertisement and servicing	2.044	2.565	0.623**	-0.522	-1.995**	0.052
35	import substitution	2.130	2.826	0.354	-0.696	-3.507*	0.001
36	Possible export market	2.000	2.609	0.453*	-0.609	-2.299**	0.026
37	Past trend of the industry	1.957	2.391	0.682**	-0.435	-1.620	0.112

38	Plan priorities of country	2.087	2.652	0.578**	-0.565	-2.089**	0.043
39	Needs of the state	2.044	2.391	0.749**	-0.348	-1.296	0.202
40	Resources of the state	1.783	2.435	0.273	-0.652	-2.532*	0.015
41	Banned list items	2.174	2.435	0.902**	-0.261	-0.875	0.386
42	Profitability	1.217	1.609	0.683**	-0.391	-2.111**	0.041
43	Character	2.044	2.565	0.644**	-0.522	-2.275**	0.028
44	Involvement in the project	1.522	1.783	0.482*	-0.261	-1.207	0.234
45	Financial resources	1.174	1.348	0.125	-0.174	-1.206	0.234
46	Competence	1.174	1.826	0.441*	-0.652	-3.838*	0.000
47	Initiative	1.913	2.478	0.413	-0.565	-2.874*	0.006
48	Intelligence	1.957	2.565	0.435*	-0.609	-3.360*	0.002
49	Patience	2.261	3.000	0.219	-0.739	-3.8728*	0.000
* Significant at 1 percent level							
** Significant at 5 percent level							

References

28, 29, 33, 34, 37, 38 and 39, the r values are found significant at 5 percent level.

The present analysis shows that the correlation between the appraisal officers' perception about the desirability and availability of the different variables for the appraisal aspects are invariably high. While desirability has been ranked high on the scale, the availability has been ranked higher. By implication, it means that the importance given by appraisal officers have brought not only the realisation about the desirability, but also has caused the availability of some of the very important variables for devising loan appraisal strategies of the development banks.

1. Anand, M (1993), Economic Appraisal of Industrial Projects, Deep and Deep Publications, New Delhi

2. Bajpai, B L (2000), "Financial and Economic Appraisal of Investment in Infrastructure in a Rural Market", Finance India, Vol XIV, No 3, Sept 2000, pp 867-880

3. Berry O P (1982), Project Evaluation Techniques, in: Deol S.P.S (ed.) Selected Readings in Development Banking, MDI, New Delhi.

4. Cano A D (1992), "Continuous Project Feasibility Study and Continuous Project Risk Assessment, International", Journal of Project Management, Vol 10, No 3, pp 165-169

5. Chakravorthy, G (1997), "Financing Working Capital 2000", Business India, Nov. 22- Dec.6, pp 100-111

6. Chandrasekhar, C P (2004), "The End of Development Finance", People's Democracy, Vol XXVIII No 8, February

7. Cracknell B E (1994), "Project Management: New Ideas and New Methods", Productivity, Vol 34, No 4, pp 607-610

8. Darzi, M A (2006), "Evaluation of Management in Project Appraisal", The Business Review, Vol. 12, No 1, September, pp. 75-82

9. Davar, D N (1984), "Appraisal of Industrial Projects by Financial Institutions", Chartered Secretary, Vol XIV, No 10, pp 719-722

10. Garg A N (1983), Financial Organisation of Punjab State Industrial Undertaking, unpublished PhD thesis, Punjab University, Chandigarh

11. Jain, D C (1986), "Project Appraisal by Financial Institutions", Chartered Secretary, Vol XVI, No. 8, 1986, pp 608-610

12. Khan, A A (1999), "Project Financing and Development Finance Institutions", Business Finance Review, www.jang.com.pk

13. Kolay M K (1993), "Potential Entrepreneur's Project Appraisal: A Total approach for the Financial Institutions", MIG, Vol XXV, No 1; pp 1-23

14. Kuchhal S C (1984), Problems in Promotion and Financing of New Projects, In search and Research: A Compendium of Lectures Delivered by IFCI Chair Professors, IFCI, edited by Saxena G S, pp 65-86

15. Kumar, A (1998), "Project Financing by FIs: Strategies Procedures and Appraisal", The Management Accountant, Vol. 37, No. 2, February, pp 93-96

16. Kumar, B (1996), "Social Cost Benefit Analysis for Project Appraisal", Survey - A Quarterly Journal, Vol XXXVI, pp 55-62

17. Maitra, D (1997), "Financing Project Finance 2000", Business India, Nov. 22 - Dec 6, pp 80-97

18. Majumder, U S (2000), "The Future of the SFCs- An Introspection", The Management Accountant, March, pp 182-183

19. Mc Manus J J (1981), "A Practical Approach to Project Appraisal", Management Accounting, Vol 59, No.11, pp 38-40

20. Rajagopalan, V and Vyasulu, V (1990), "Development Banking: Operational Issues at the Field Level, International", Journal of Development Banking, Vol 8, No 1, pp 35-41

21. Ramanathan, A (1997), "Project Appraisal Methods - A Comparative Analysis", Industrial Engineering Journal, Vol XXVI No 6, June, pp 10-15

22. Rangarajan (1984), "Recent Trends in Industrial Growth", RBI Bulletin, 38 (1), pp 25-29

23. Rao, R K S (1995), Financial Management- Concepts and Applications, Cincinnati Ohio, South-Western College Publishing

24. Roy, T P and Dosaj, T (1985), Role of Feasibility Reports in Avoiding Project Disasters, in: Bansal J C and Ghosh, B ed., Project Management of Process Plants, Depot of Chemical Engineering, Punjab University Chandigarh, pp 63-92

25. Sharma A (1983), "Investment Appraisal", The Management Accountant, Vol 18, No. 7; pp 262-264

26. Sharma, D (1998), "Role of Development Banks in Industrialization of Himachal Pradesh", Finance India, Vol XII No 2, pp 470-480

27. Singh S P and Anand M (1992), "Prospects of Project Appraisal in a Changing Economic Scenario", The Chartered Accountant, Vol XLI, No 4, pp 271-275

28. Singh, S P and Anand M (1993-94), "Social Cost Benefit Analysis of Projects of a State Industrial Developing Corporation", Prajnan, Vol XXII No 2, pp 301-322

29. Vaidyanathan, R (2002), "Whither DFIs", Professional Banker, January.

30. Venu, S (1986), "Cost - Benefit Analysis in Project Appraisal - A Perspective", Lok Udyog, Vol. XIX, No.11, pp 13-15