

## Annexure






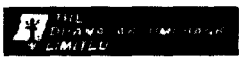
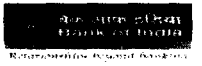



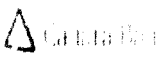





















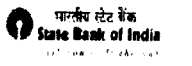
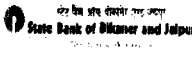
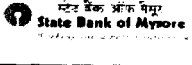

**Annexure: 4 (A)****Summary of Literature Survey of Inputs and Outputs Variables**

Author(s)	Input Variables	Output Variables	Period of Study
<b>Indian Context -</b>			
Ketkar & Noulas (1996)	1.Capital 2.No. of Employees 3.Deposit	1.Advances, 2.Deposit 3.nvestments	1993
Bhattacharyya A., C.A.K. Lovell & P. Sahay (1997)	1.Interest Expense, 2.Operating Expense	1.Deposits 2.Advances 3.Investments	1986-91
Saha & Ravisankar (2000)	1.No. of Branches 2.No. of Employees 3.Establishment & Non- establishment Expenditure	1.Advances 2.Deposit 3.nvestments 4. Spread 5.Total Income 6.Interest Income 7. Non-Interest Income	1991-92 - 1994-95
Ketkar, Noulas & Agarwal (2003)	1.Capital 2.No. of Employees 3.Deposit	1.Advances, 2.Deposit 3.nvestments	1990-95
Sathye M (2003)	Model –A 1.Interest Expenses 2. Non-interest Expenses	1.Net Loan 2.Non-interest Income	1997-98
	Model –B 1.Deposit 2. Staff	1.Net-Interest Income 2.Non-interest Income	
Mohan & Ray (2004)	1.Operating Costs, 2.Deposits	1.Investments, 2.Loans, 3.Non-interest Income	1992-00
Reddy Amarender Reddy (2004)	1.Ffixed assets, 2.Interest expended 3.wages	1.Total income, 2.Liquid assets 3.Total advances	1996-02
Das A, A. Nag and S Ray (2004) <sup>53</sup>	1.No. of Employees, , 2.Fixed Assets, 3.Equity	1.Performing Loans 2.Non-interest Income	1997-03
Ketkar, Agarwal, Singh & Mitra (2005)	Model-1 1.Deposit 2.Staff 3.No. of Branches	1.Advances 2. Investments	1996-03
	Model 2 1..Staff 2.Fixed Assets 3.No. of Branches	1.Advances 2. Investments 3.Deposit	
Chakrabarty & Chwala (2005)	Model A 1Interest Expenses 2.Operating Expenses	1.Advances 2. Investments 3.Deposit	1990-02
	Model A 1Interest Expenses 2.Operating Expenses	1Interest Income 2.Non-interest Income	

Debasish (2006)	<ol style="list-style-type: none"> <li>1. Total deposits received (balance sheet items)</li> <li>2. Total liabilities (working funds + other liabilities)</li> <li>3. Labour related administrative costs (Gross wages)</li> <li>4. Capital related administrative cost (amortization, office maintenance and office supplies, etc.)</li> <li>5. Operating Expenses</li> <li>6. Fixed Assets (balance sheet item)</li> <li>7 Total borrowings</li> <li>8 Net worth</li> <li>9 Net NPA (Non-Performing Assets)</li> </ol>	<ol style="list-style-type: none"> <li>1 Total loans extended</li> <li>2 Total investments</li> <li>3 Net profits</li> <li>4 Interest and related revenues</li> <li>5 Non-interest income (commissions for provision of services and related revenues)</li> <li>6 Short-term securities issued by official sectors (CNB bills and MOF treasury bills)</li> <li>7 NIM (Net Interest margin)</li> </ol>	1997-2004
Ray (2007)	<ol style="list-style-type: none"> <li>1.Labor</li> <li>2.Physical capital</li> <li>3. Borrowed funds (including deposits) and 4.equity.</li> </ol>	<ol style="list-style-type: none"> <li>1.Credits (adjusted for nonperforming loans)</li> <li>2.Investments and</li> <li>3. Other incomes.</li> </ol>	1997-2003
Ketkar and Ketkar (2008)	<b>Model-1</b> <ol style="list-style-type: none"> <li>1.No. of Bank Branches</li> <li>2.Equity</li> <li>3.Total operating expenses</li> <li>4.Deposits</li> </ol>	<ol style="list-style-type: none"> <li>1.Loans</li> <li>2.Non-interest Income</li> </ol>	1996-03
	<b>Model 2</b> <ol style="list-style-type: none"> <li>No. of Bank Branches</li> <li>2.Equity</li> <li>3.Total operating expenses</li> </ol>	<ol style="list-style-type: none"> <li>1.Loans</li> <li>2. Non-interest Income</li> <li>3.Deposit</li> </ol>	
Kumar and Gulati (2008)	<ol style="list-style-type: none"> <li>1.Physical Capital (Fixed Assets)</li> <li>2. Labor (Number of Employees)</li> <li>3.Loanable Fund (Deposit+ Borrowing)</li> </ol>	<ol style="list-style-type: none"> <li>1.Net interest Income</li> <li>2. Non—interest Income</li> </ol>	2004-05
Reserve bank of India (2008)	<ol style="list-style-type: none"> <li>1.Fixed assets</li> <li>2. Labor</li> <li>3.Deposit and borrowing</li> </ol>	<ol style="list-style-type: none"> <li>1.Credit</li> <li>2.Investment</li> <li>3. Assets equivalent of Off balance sheet exposure.</li> </ol>	1991-2007
Ompakash et al ( 2008)	<ol style="list-style-type: none"> <li>1.Interest Expenses</li> <li>2.Operating</li> </ol>	<ol style="list-style-type: none"> <li>1.Interest Income</li> <li>2.Fee based 3.Income Investment Income</li> </ol>	1999-03
Kumar and Gulati (2009)	<ol style="list-style-type: none"> <li>1.Physical Capital (Fixed Assets)</li> <li>2. Labor (Number of Employees)</li> <li>3.Loanable Fund (Deposit+ Borrowing)</li> </ol>	<ol style="list-style-type: none"> <li>1.Net interest Income</li> <li>2. Non—interest Income</li> </ol>	1992-93 to 2005-06
<b>Global context -</b>			
Miller et al. (1996) USA	<ol style="list-style-type: none"> <li>1.Total transactions deposit.</li> <li>2.Total non-transaction deposit.</li> <li>3.Total interest expenses</li> </ol>	<ol style="list-style-type: none"> <li>1.Commercial and industrial Loan, 2.Consumer,</li> <li>3. Real estate loans,</li> </ol>	1984 - 1990

	4.Total non-interest expenses	4.Investment, 5. Total interest income and 6.Total non-interest income	
Jackson et al. (2000) Turkis	1.The number of employees 2.The sum of non-labour operating expense, direct expenditure on buildings and amortization expenses	1.Loans 2. Demand deposits 3.Time deposits	1999
Casu et al. (2003), European banks	1.Total Cost, 2.Total Deposit	1.Total Loans 2.Other Earning Assets	1993 – 1997
Chansarn Supachet (2008), Thailand	1.Interest expenses in million baht 2.Labor-related expenses (gross wages) in million baht 3. Capital-related expenses (premises and equipment expenses) in million	1.Interest and dividend incomes in million baht 2.Non-interest incomes in million baht	2003-06
	1. Total deposits in million baht 2. Total expense (Interest and non-interest expenses) in million baht	1.Total loans in million baht 2. Net investments in million bah	
Malak REDA (2008) Egypt	1.Labour ( the number of fulltime employees on the payroll) 2.Capital (the book value of premises and fixed assets) (3) Loan able funds (the sum of deposit (demand and time) and non-deposit funds)	1. Loans and Overdrafts 2.Off-balance sheet items 3.Other earning assets	1195-2003
Roberta B. Staub (2009) Brazil	1.Interest expenses, 2.Operational expenses net of personnel expenses (proxy for capital expenses) 3.Personnel expenses (labor)	1.investments, 2.Total loans net of provision loans 3.Deposits	2000-2007
Usman et al. (2010) Pakistan	1. Operating Fixed Assets, 2. Deposit 3. No of Employees 4. Bills Payable 5. Borrowing	1. Lending to Financial Institutions 2.Investment 3. Advance	2001-08
Asror NIGMONOV (2010) Uzbekistan	1.Fixed assets 2.Operational expenses 3.Total Deposits	1.Total credits - Reserve for possible loan losses 2.Net non interest income 3.Other non-interest income (Dividends, Forex operations, etc)	2004-06
Mohammad Hanif Akhtar (2010), Soudi banks	1.Deposits, 2.Physical capital 3.Operating expenses, and the outputs are:	1.Lloans and advances 2.Investments 3. Non-interest income.	2001-2006
AlKhathlan et al. (2010) Soudi banks	1.Operating expenses 2.Equity capital 3.Deposits	1.Loans and advances (net)	2003-08

**Annexure: 4 (B)****Sample banks with their codes**

SN	Banks	Code	Estd.	SN	Banks	Code	Estd.
1	 Allahabad Bank	ALB	1865	21		BOR	1943
2	 ANDHRA BANK	ANB	1923	22		CUB	1904
3	 बैंक ऑफ बरोडा Bank of Baroda	BOB	1908	23		DLB	1927
4	 बैंक ऑफ इंडिया BANK OF INDIA	BOI	1906	24		FDB	1944
5	 BANK OF MAHARASHTRA	BOM	1935	25		IVB	1930
6	 Canara Bank	CAB	1906	26		JKB	1938
7	 Corporation Bank	COB	1906	27		KTB	1924
8	 देना बैंक DENA BANK	DEB	1939	28		KVB	1916
9	 IDBI BANK	IDL	1964	29		LVB	1926
10		IOB	1937	30		SIB	1929
11	 ओ.बी.सी.	OBC	1943	31		AXB	1994
12	 punjab national bank	PNB	1895	32		CBP	2005
13	 Syndicate Bank	SYB	1925	33		HDB	1994
14	 यू.सी.बी. UCB BANK	UCB	1943	34		ICB	1994
15	 Union Bank	UBI	1920	35		IIB	1994
16	 विजया बैंक VIJAYA BANK	VJB	1931	36		KMB	2003
17	 भारतीय स्टेट बैंक State Bank of India	SBI	1806				
18	 राजस्थान स्टेट बैंक State Bank of Bikaner and Jaipur	SBJ	1963				
19	 स्टेट बैंक ऑफ मिसूरु State Bank of Mysore	SBM	1913				
20		SBT	1945				

**Annexure: 5. (A)****Summary Statistics on Input/output Data**

	Inputs				Outputs			
2005								
	Input -1	Input -2	Input -3	Input -4				
Max	9036	205515	1007418	36704753	1394464	711991	5786482	430453
Min	53	1313	6261	233884	7310	1471	42208	-3818
Average	1255	19394	108609	4169179	145672	74549	830360	48725
SD	1637	34347	171454	6186299	232289	124850	1054102	77000
2006								
Max	9143	185388	1172509	38004605	1558913	743520	8001288	440668
Min	78	1385	7018	253268	8300	2191	56714	907
Average	1222	20307	128159	4908487	170553	74697	1160322	54307
SD	1615	30983	201620	6712796	263644	134279	1499199	82617
2007								
Max	9270	185388	1182352	43552109	1605420	592916	10201585	454130
Min	109	1385	8775	308796	9676	2963	70775	1614
Average	1284	20307	142424	6149775	200412	79640	1488859	66151
SD	1627	30983	214638	7961413	282422	129450	1879399	88169
2008								
Max	10183	185388	1260861	53740395	1702122	881075	11923051	672911
Min	180	1385	9654	360843	10480	3622	90877	2527
Average	1395	20307	163759	7529107	216061	121272	1747677	89272
SD	1760	30983	237737	9531838	302346	194649	2162980	127256

## Annexure: 5. (B)

## Correlations between input and output variables

	Inputs				Outputs			
	Input - 1	Input - 2	Input - 3	Input - 4	Output - 1	Output - 2	Output - 3	Output - 4
2005								
Input - 1	1	0.948	0.902	0.919	0.928	0.829	0.84	0.922
Input - 2		1	0.97	0.981	0.988	0.92	0.911	0.951
Input - 3			1	0.992	0.989	0.982	0.973	0.971
Input - 4				1	0.994	0.967	0.963	0.974
Output - 1					1	0.956	0.957	0.964
Output - 2						1	0.982	0.94
Output - 3							1	0.954
Output - 4								1
2006								
Input - 1	1	0.966	0.885	0.909	0.932	0.781	0.891	0.827
Input - 2		1	0.964	0.968	0.987	0.899	0.942	0.915
Input - 3			1	0.989	0.988	0.978	0.971	0.975
Input - 4				1	0.988	0.955	0.989	0.975
Output - 1					1	0.941	0.967	0.958
Output - 2						1	0.937	0.972
Output - 3							1	0.976
Output - 4								1
2007								
Input - 1	1	0.968	0.84	0.887	0.908	0.623	0.886	0.809
Input - 2		1	0.929	0.945	0.968	0.755	0.942	0.891
Input - 3			1	0.985	0.984	0.939	0.98	0.983
Input - 4				1	0.985	0.907	0.995	0.98
Output - 1					1	0.872	0.985	0.969
Output - 2						1	0.9	0.947
Output - 3							1	0.982
Output - 4								1
2008								
Input - 1	1	0.978	0.819	0.922	0.901	0.678	0.919	0.852
Input - 2		1	0.893	0.958	0.951	0.766	0.952	0.906
Input - 3			1	0.966	0.977	0.964	0.96	0.985
Input - 4				1	0.981	0.899	0.992	0.977
Output - 1					1	0.892	0.97	0.979
Output - 2						1	0.9	0.949
Output - 3							1	0.973
Output - 4								1

## Annexure: 5. (C)

## Bank-wise Efficiency Scores

DMUs	Yearly Frontier												Grand Frontier		
	2005			2006			2007			2008			2005 -08		
	OTE	PTE	SE	OTE	PTE	SE	OTE	PTE	SE	OTE	PTE	SE	OTE	PTE	SE
ALB	0.848	0.877	0.967	0.901	1	0.901	1	1	1	1	1	1	0.93	0.951	0.978
ANB	1	1	1	0.879	0.918	0.958	0.887	0.927	0.957	0.892	0.926	0.963	0.913	0.968	0.943
BOB	0.878	0.972	0.904	0.817	0.869	0.94	0.827	0.906	0.913	0.809	0.882	0.917	0.838	0.918	0.912
BOI	0.762	0.819	0.931	0.78	0.867	0.9	0.814	0.899	0.905	0.95	1	0.95	0.85	0.93	0.914
BOM	0.746	0.748	0.997	0.873	0.907	0.963	0.852	0.856	0.996	0.904	0.915	0.989	0.858	0.872	0.984
CAB	0.897	1	0.897	1	1	1	0.984	1	0.984	0.937	1	0.937	0.962	1	0.962
COB	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DEB	0.772	0.772	1	0.904	0.951	0.95	0.936	0.946	0.989	0.832	0.833	0.999	0.874	0.886	0.986
IDL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
IOB	0.975	1	0.975	0.99	1	0.99	1	1	1	0.983	1	0.983	1	1	1
OBC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PNB	0.928	1	0.928	0.963	1	0.963	0.961	1	0.961	0.963	1	0.963	0.999	1	0.999
SYB	0.848	0.879	0.964	0.863	0.893	0.966	0.825	0.846	0.976	0.862	0.894	0.964	0.822	0.853	0.963
UCB	0.775	0.779	0.996	0.796	0.844	0.944	0.84	0.84	1	0.826	0.867	0.952	0.838	0.859	0.975
UBI	1	1	1	1	1	1	1	1	1	0.998	1	0.998	1	1	1
VJB	1	1	1	0.939	0.947	0.992	0.94	0.954	0.985	0.962	0.964	0.998	0.944	0.945	0.999
SBI	0.891	1	0.891	0.931	1	0.931	0.832	1	0.832	0.865	1	0.865	0.903	1	0.903
SBJ	1	1	1	1	1	1	0.96	0.969	0.991	0.933	0.934	0.998	0.983	1	0.983
SBM	0.977	0.977	1	0.959	1	0.959	0.932	0.934	0.998	0.852	0.858	0.993	0.946	0.972	0.974
SBT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BOR	0.632	0.641	0.986	0.562	0.643	0.873	0.746	0.755	0.988	0.651	0.657	0.991	0.646	0.647	0.998
CUB	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DLB	0.702	1	0.702	0.736	1	0.736	0.733	1	0.733	0.783	1	0.783	0.735	1	0.735
FDB	0.894	0.898	0.995	0.986	0.987	0.999	1	1	1	1	1	1	1	1	1
IVB	0.818	0.819	0.999	0.912	0.929	0.982	0.904	0.928	0.974	0.839	0.874	0.96	0.86	0.866	0.994
JKB	0.981	1	0.981	1	1	1	1	1	1	1	1	1	1	1	1
KTB	1	1	1	1	1	1	1	1	1	0.914	0.914	1	1	1	1
KVB	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
LVB	0.94	0.982	0.957	0.793	0.96	0.826	0.909	0.979	0.929	0.878	1	0.878	0.894	0.956	0.935
SIB	0.799	0.8	0.999	0.851	0.865	0.983	0.896	0.912	0.983	0.932	0.937	0.995	0.883	0.883	1
AXB	0.92	1	0.92	1	1	1	1	1	1	1	1	1	1	1	1
CBP	0.988	1	0.988	0.84	0.843	0.997	1	1	1	0.849	0.928	0.914	0.943	0.974	0.968
HDB	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ICB	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
IIB	1	1	1	0.919	1	0.919	0.988	1	0.988	1	1	1	1	1	1
KMB	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



**Annexure: 5. (D).****Bank wise Nature of Returns to Scale**

DMUs	Yearly Frontier				Grand Frontier
	2005	2006	2007	2008	2005-08
ALB	DRS	DRS	CRS	CRS	DRS
ANB	CRS	DRS	DRS	DRS	DRS
BOB	DRS	DRS	DRS	DRS	DRS
BOI	DRS	DRS	DRS	DRS	DRS
BOM	DRS	DRS	DRS	DRS	DRS
CAB	DRS	CRS	DRS	DRS	DRS
COB	CRS	CRS	CRS	CRS	CRS
DEB	IRS	DRS	DRS	IRS	DRS
IDL	CRS	CRS	CRS	CRS	CRS
IOB	DRS	DRS	CRS	DRS	CRS
OBC	CRS	CRS	CRS	CRS	CRS
PNB	DRS	DRS	DRS	DRS	DRS
SYB	DRS	DRS	DRS	DRS	DRS
UCB	DRS	DRS	IRS	DRS	DRS
UBI	CRS	CRS	CRS	DRS	CRS
VJB	CRS	DRS	IRS	IRS	DRS
SBI	DRS	DRS	DRS	DRS	DRS
SBJ	CRS	CRS	DRS	IRS	DRS
SBM	DRS	DRS	DRS	IRS	DRS
SBT	CRS	CRS	CRS	CRS	CRS
BOR	IRS	IRS	IRS	IRS	DRS
CUB	CRS	CRS	CRS	CRS	CRS
DLB	IRS	IRS	IRS	IRS	IRS
FDB	IRS	IRS	CRS	CRS	CRS
IVB	IRS	IRS	IRS	IRS	DRS
JKB	IRS	CRS	CRS	CRS	CRS
KTB	CRS	CRS	CRS	IRS	CRS
KVB	CRS	CRS	CRS	CRS	CRS
LVB	IRS	IRS	IRS	IRS	IRS
SIB	DRS	IRS	IRS	IRS	IRS
AXB	DRS	CRS	CRS	CRS	CRS
CBP	IRS	DRS	CRS	IRS	IRS
HDB	CRS	CRS	CRS	CRS	CRS
ICB	CRS	CRS	CRS	CRS	CRS
IIB	CRS	IRS	IRS	CRS	CRS
KMB	CRS	CRS	CRS	CRS	CRS

**Annexure: 5. (E)****Profit and Risk efficiency scores**

Banks	Profit Efficiency					Risk Efficiency				
	2005	2006	2007	2008	Average (2005-08)	2005	2006	2007	2008	Average (2005-08)
ALB	0.936	1.003	0.839	0.914	0.923	0.525	0.624	0.762	0.685	0.649
ANB	1.087	0.922	0.843	0.799	0.913	0.970	1.087	0.927	0.923	0.977
BOB	0.470	0.539	0.517	0.646	0.543	0.511	0.590	0.601	0.658	0.590
BOI	0.268	0.555	0.740	0.993	0.639	0.430	0.517	0.563	0.615	0.531
BOM	0.390	0.126	0.611	0.684	0.453	0.519	0.508	0.543	0.518	0.522
CAB	0.680	0.829	0.689	0.660	0.715	0.539	0.629	0.652	0.634	0.613
COB	0.610	0.730	0.736	0.855	0.733	0.675	0.688	0.707	0.858	0.732
DEB	0.187	0.229	0.548	0.854	0.454	0.437	0.529	0.538	0.562	0.516
IDL	0.344	0.433	0.421	0.415	0.403	0.772	0.758	0.779	0.696	0.751
IOB	0.921	1.044	1.068	1.073	1.026	0.654	0.702	0.711	0.814	0.720
OBC	1.084	0.768	0.666	0.294	0.703	0.680	0.772	0.720	0.565	0.684
PNB	0.766	0.732	0.694	0.810	0.751	1.219	1.204	0.827	0.708	0.990
SYB	0.621	0.774	0.781	0.785	0.740	0.477	0.573	0.614	0.671	0.584
UCB	0.560	0.304	0.421	0.506	0.448	0.451	0.447	0.489	0.444	0.458
UBI	0.744	0.647	0.689	0.933	0.753	0.509	0.576	0.654	0.915	0.664
VJB	0.933	0.324	0.713	0.632	0.651	0.690	0.644	0.643	0.616	0.648
SBI	0.672	0.676	0.620	0.750	0.680	0.500	0.654	0.681	0.622	0.614
SBJ	0.589	0.415	0.730	0.714	0.612	0.523	0.573	0.686	0.585	0.592
SBM	0.964	0.978	0.889	0.943	0.943	0.593	0.620	0.771	0.670	0.664
SBT	0.715	0.750	0.764	0.854	0.771	0.610	0.591	0.676	0.882	0.690
BOR	0.310	0.158	0.977	0.666	0.528	0.414	0.477	0.711	0.585	0.547
CUB	0.807	0.969	1.025	1.066	0.967	0.495	0.618	0.651	0.701	0.616
DLB	-0.584	0.279	0.422	0.668	0.196	0.421	0.437	0.473	0.474	0.451
FDB	0.438	0.936	0.939	0.767	0.770	0.468	0.670	0.706	0.949	0.698
IVB	-0.168	0.038	0.361	0.517	0.187	0.377	0.510	0.489	0.526	0.476
JKB	0.279	0.453	0.645	0.798	0.544	0.843	0.595	0.632	0.652	0.680
KTB	0.727	0.809	0.729	0.904	0.792	0.835	0.917	0.736	0.647	0.784
KVB	0.725	0.933	0.900	1.002	0.890	0.576	0.697	0.868	0.945	0.772
LVB	0.052	0.370	0.225	0.286	0.233	0.437	0.441	0.509	0.496	0.471
SIB	0.066	0.384	0.588	0.714	0.438	0.409	0.522	0.552	0.652	0.534
AXB	0.731	0.804	0.828	0.816	0.795	0.644	0.654	0.670	0.782	0.688
CBP	0.322	0.558	0.521	0.340	0.435	0.580	0.512	0.480	0.461	0.508
HDB	0.807	0.863	0.884	0.909	0.866	1.418	0.891	0.898	0.825	1.008
ICB	0.818	0.762	0.669	0.666	0.729	0.516	0.688	0.644	0.664	0.628
IIB	0.951	0.170	0.268	0.261	0.413	0.486	0.433	0.465	0.442	0.457
KMB	0.726	0.799	0.574	0.694	0.698	0.784	0.877	0.523	0.623	0.702

