

**FINANCIAL SECTOR**  
**REFORMS AND THEIR**  
**IMPACT ON EFFICIENCY OF**  
**BANKS: A CASE OF**  
**PAKISTAN**

*By*

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- Before 1990's the banking sector in Pakistan has been dominated by Public sector which leads to inefficiency.
- A strong regulatory and supervisory system is necessary to cop with the financial crises and promotes the efficiency.
- Challenge is to formulate an appropriate regulatory framework that enables the banking system to be more resilient to insolvency.

## Introduction

- In 1996 the Government initiated macroeconomic and financial sector restructuring programs with the help of foreign agencies.
- These programs can be classified as
  - Pre-Reform (1991-1997)
  - First phase of Reforms (1998-2001)
  - Second Phase of Reforms (2002-2005 & 2008)
- The Government of Pakistan has decided in 2000 to review the reforms program with the help of WB
  - Banking Sector Restructuring and Privatization Project (PBSRPP).

**Cont....**

- PBSRPP focused on;
  - Reducing the cost structure
  - Privatization of banks
  - Liberalizing bank branching policy
  - Reduction in taxes
  - Integration of national savings scheme
  - Foreign currency deposits by the commercial banks
  - Strengthening the central bank

**Cont...**

- These steps taken by the Government and SBP to restructure financial sector.
  - Privatization of NCBs
  - Corporate governance
  - Capital strengthening
  - Improving asset quality
  - Consumer financing
  - Legal reforms
  - Prudential regulations
  - E-banking
  - Credit rating
  - Reduction of corporate taxation and human resource development

**Cont...**

- In order to encourage private sector participation, the Banks (Nationalization) Act, 1974 was amended during 1991.
- The privatization process started by selling, 26% shares of the Muslim Commercial Bank (MCB) to the private sector in April 1991.
- In September 1991, 26% of the shares of Allied Bank Limited (ABL) were also disinvested.
- 25% of shares of ABL and 26% of the shares of United Bank Limited (UBL) were sold in August 1993.

**Cont....**

- In 1997, a system was put in place whereby the performance of each bank and Nonbank Financial Institutions (NBFI) was evaluated under CAMELS and CAELS.
- In 2001, the SBP was divided into three parts;
  - The SBP, as Central Bank
  - SBP Banking Services Corporation
  - National Institute of Banking and Finance (NIBAF).
- The Securities and Exchange Commission of Pakistan (SECP) replaced CLA (Corporate Law Authority) as an independent regulatory body for the capital market.

**Cont....**

- By Privatization the banking sector has gained dynamism and financial strength.
- Overall assets of the banking sector increased from Rs. 3.6 trillion 2005 to Rs. 5.5 trillion 2008.
- Banks' aggregate profitability rose from Rs 63.3 billion in 2005 to Rs 46.0 billion for half year 2008.
- The average risk-based capital adequacy ratio (CAR) for all commercial banks strengthened from 11.4% in 2000 to 12.1% by end June 2008.

**Cont....**



- In Pakistan the level of financial exclusion from the formal sector is dramatic.
  - Only 15% of the population has bank accounts and less than 4% are borrowers.
  - Only 25% of total bank depositors and 17% of total borrowers reside in rural areas.
  - there are less than 2,500 branches for a population of 105 million people—or an average of 42,000 inhabitants per branch.

**Cont....**

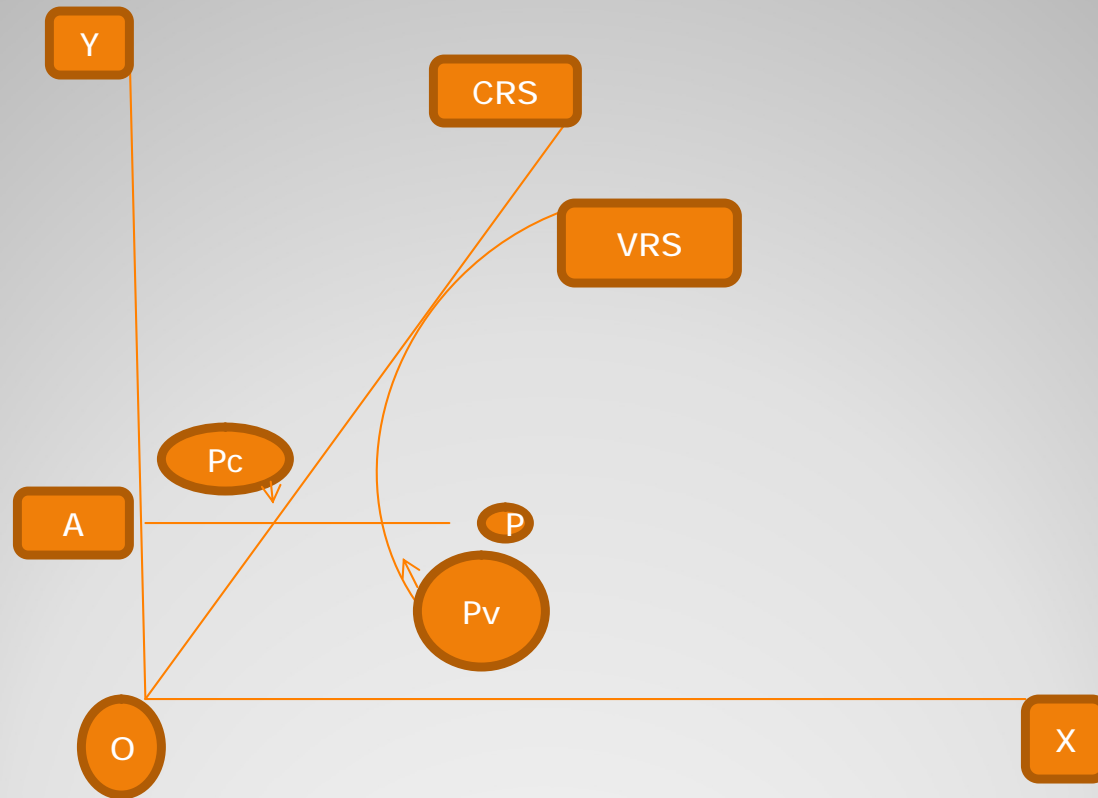
- Chatterjee and Sinha (2005) suggest an improvement in performance if net interest margin or non-interest income is taken as the output indicator but a decline in performance if loans are taken as the output indicator.
- Burki and Niazi (2003) found that banking efficiency has varied over the study period from highest efficiency in 1991 to lowest efficiency in 1996
- Rime and Stiroh (2003) examined found evidence of economies of scale for small and medium size banks
- Das (2002) examined the effects of financial deregulation on risk and productivity change of public sector banks in India for the period 1995-2001.
- Akhter (2002) estimated the efficiencies of 40 commercial banks in Pakistan for the year 1998 using cross section data.
- Rizivi, (2001) analyzed the productivity of banking sector in Pakistan for the period 1993-1998 using DEA to estimate input as well as output distance functions to measure and decompose the total factor productivity into constituent components.

## Review of Literature

- Efficiency studies have used parametric and non-parametric approaches.
- Data Envelopment Analysis (DEA) is used to estimate the output frontier. Distance functions are estimated under Constant Returns to Scale (CRS) and Variable Returns to Scale (VRS) assumptions.
- Technical efficiency (TE) relates to the productivity of inputs (Sathye, 2001).
- In DEA, OTE measure has been decomposed into two mutually exclusive and non-additive components: pure technical efficiency (PTE) and scale efficiency (SE)

## METHODOLOGY

## Technical, pure technical & scale efficiency



# Cont...

Cont....

Max TE K

Subject to

$$\sum_{i=1}^m u_i y_{ir} - x_{jr} + w \leq 0$$

$$v_j x_{jr} - \sum_{j=1}^n u_j x_{jk} \quad u_i \text{ \& \; } v_j = 0$$

Cont...

Min TEK

Subject to

$$\sum_{i=1}^m u_i y_{ir} - y_{iF} + w \geq 0$$

$r=1, \dots, K$

$$x_{jr} - \sum_{j=1}^n u_j x_{jk} \geq 0$$

$u_i \text{ \& } v_j =$

- Efficiency of a commercial bank is often used to describe its performance.
- The measured efficiency of a commercial bank is usually used to interpret the difference between the observed quantity of input and output variables with respect to optimal quantity of input and output variables.
- The maximum value which a fully efficient bank can obtain is one while minimum value which the most inefficient bank can have is zero.

- The use of DEA to compute various efficiency scores has been preferred over other competing techniques, especially stochastic frontier analysis (SFA) for measuring relative efficiency of banks for several reasons.
  - it allows the estimation of overall technical efficiency (OTE) and decomposes it into two mutually exclusive and non-additive components.
  - there is no need to select a priori functional form relating to inputs and outputs
  - DEA easily accommodates multiple-inputs and multiple-outputs of the banks.
  - it provides a scalar measure of relative efficiency
  - in DEA, it is not necessary to provide values for weights associated with input and output factors
  - DEA works particularly well with small samples

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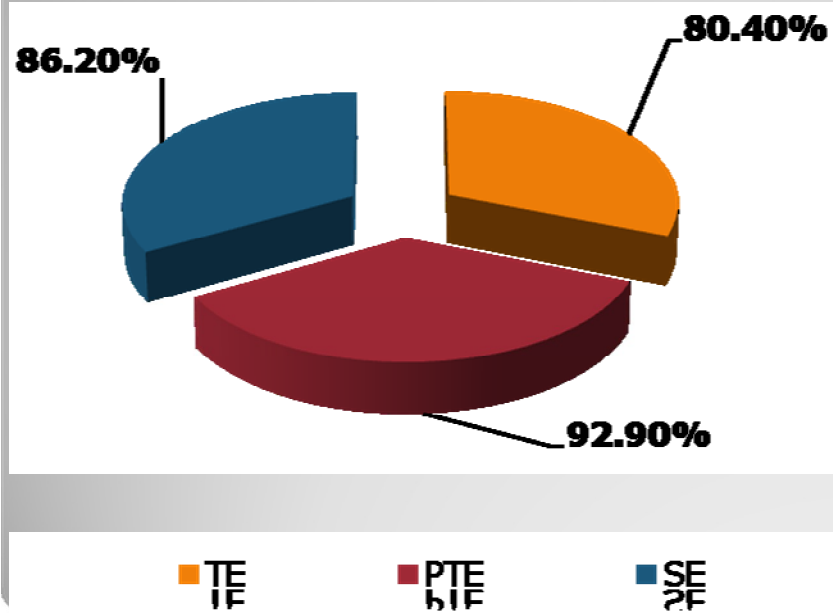
- Input Variables: **Deposits** it includes demand deposits, time deposits & other deposits **Labor** it includes number of labor and **Capital** it includes premises & immovable property plus others assets are treated as **Inputs**.
- Output Variables: **Loans & Advances** and **Investment** it includes government securities plus others as **Outputs**.
- We attempt to assess whether the efficiency of the banking sector improved or not by using the data from 1990 to 2008.

**Cont....**

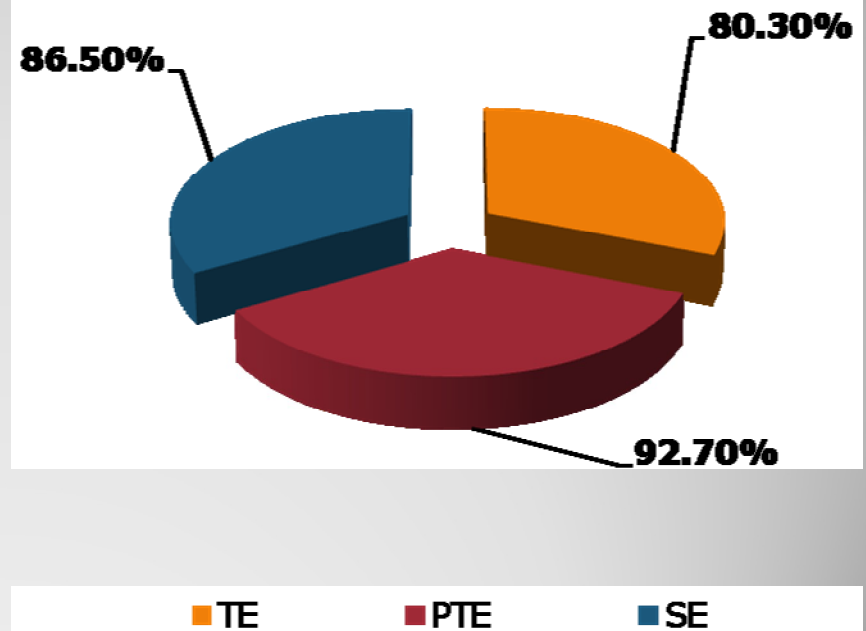
# Results

INPUT ORIENTED				OUTPUT ORIENTED		
Years	TE/OTE	PTE	SE	TE/OTE	PTE	SE
1991	0.649	0.880	0.742	0.649	0.887	0.736
1991-97	0.786	0.912	0.861	0.786	0.916	0.856
1998-01	0.788	0.943	0.834	0.788	0.936	0.843
2002-05	0.877	0.960	0.912	0.877	0.955	0.918
2006-08	0.769	0.912	0.836	0.766	0.901	0.849
1991-08	0.804	0.929	0.862	0.803	0.927	0.865

**Input Oriented Efficiency Measures of Banking Industry (Mean 1991-2008)**



**Output Oriented Efficiency Measures of Banking Industry (Mean 1991-2008)**



Input Oriented					Output Oriented		
Banks	Years	TE/OTE	PTE	SE	TE/OTE	PTE	SE
Pre-Reforms	<b>1991</b>	<b>0.649</b>	<b>0.880</b>	<b>0.742</b>	<b>0.649</b>	<b>0.887</b>	<b>0.736</b>
	1992	0.718	0.886	0.818	0.718	0.888	0.817
	1993	0.727	0.901	0.807	0.727	0.921	0.787
	1994	0.879	0.951	0.924	0.879	0.961	0.914
	1995	0.802	0.899	0.883	0.802	0.902	0.882
	1996	0.875	0.930	0.939	0.875	0.926	0.944
	1997	0.854	0.935	0.912	0.854	0.928	0.909
<b>MEAN</b>	<b>1991-97</b>	<b>0.786</b>	<b>0.912</b>	<b>0.861</b>	<b>0.786</b>	<b>0.916</b>	<b>0.856</b>
Phase-1	1998	0.812	0.929	0.868	0.812	0.923	0.875
	1999	0.797	0.946	0.845	0.797	0.950	0.842
	2000	0.802	0.966	0.828	0.802	0.957	0.839
	2001	0.739	0.929	0.794	0.739	0.914	0.815
<b>MEAN</b>	<b>1998-01</b>	<b>0.788</b>	<b>0.943</b>	<b>0.834</b>	<b>0.788</b>	<b>0.936</b>	<b>0.843</b>
Phase-2	2002	0.821	0.932	0.877	0.821	0.924	0.884
	2003	0.825	0.940	0.880	0.825	0.931	0.891
	2004	0.924	0.989	0.934	0.924	0.986	0.937
	2005	0.939	0.979	0.958	0.939	0.980	0.958
	<b>2002-05</b>	<b>0.877</b>	<b>0.960</b>	<b>0.912</b>	<b>0.877</b>	<b>0.955</b>	<b>0.918</b>
	2006	0.874	0.814	0.930	0.874	0.779	0.937
	2007	0.894	0.956	0.936	0.882	0.958	0.923
	2008	0.920	0.965	0.941	0.921	0.967	0.956
<b>MEAN</b>	<b>2006-08</b>	<b>0.769</b>	<b>0.912</b>	<b>0.836</b>	<b>0.766</b>	<b>0.901</b>	<b>0.849</b>
<b>MEAN</b>	<b>1991-08</b>	<b>0.804</b>	<b>0.929</b>	<b>0.862</b>	<b>0.803</b>	<b>0.927</b>	<b>0.865</b>

- The analysis found that commercial banks could improve their efficiency by increasing profits, assets, markup interest earnings and non-markup interest earning and decreasing liabilities, markup interest expenditures and non-markup interest expenditures among the bank specific variables.
- government can improve the efficiency of banking sector in Pakistan by promoting foreign banking and discouraging the privatization of public sector banks and mergers in the banking sector.
- There is an overall improvement in the efficiency of commercial banks.

## CONCLUSION

- Financial sector reforms changed the ownership structure of the banking sector during the two decade. Earlier banking sector was dominated by the state owned banks. Now share of public sector banks has declined.
- Improve the efficiency of the banks and after the reform the PTE is increased as compared to SE. It is further concluded that the overall efficiency of the industry improved because of increase in the pure technical efficiency (PTE).
- This study however concentrated only one aspect of commercial bank that is role as an intermediary. There are number of other dimensions and aspects needs to be explored, these include efficiency of bank as production unit, economic and allocative efficiency of banks. This requires a series of studies in future.

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**Thank you**