A Study on Public Sector Banks and Private Sector Banks Before and After Global Financial Crisis

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***Abstract*- The Global Financial Crisis, which started in 2008, is considered to be the latest in the series of economic crises to adversely affect world economies. Unlike the past few crises, the current crisis has not spared any of the countries or market sectors, and has devastated economies that were traditionally strong. It is stated that an excessively loose monetary policy in the 1990s in major developed economies transformed into global imbalances and a full-blown financial and economic crisis for all the economies of the world (Mohan, Rakesh, 2009)1. In India, it is the real economy that got impacted first — on account of exports and the drying up of overseas finance for many firms. Banks are affected indirectly by the slowing down of the economy. The direct impact of the crisis on the Indian banking system has been small because Indian banks do not have big exposures to the subprime market. Indian banks are well placed to weather this impact.**

Index Terms-Subprime crisis, Global melt down, recession,

I. INTRODUCTION

The Global Financial Crisis, which started in 2008, is considered to be the latest in the series of economic crises to adversely affect world economies. Unlike the past few crises, the current crisis has not spared any of the countries or market sectors, and has devastated economies that were traditionally strong. It is stated that an excessively loose monetary policy in the 1990s in major developed economies transformed into global imbalances and a full-blown financial and economic crisis for all the economies of the world (Mohan, Rakesh, 2009)[1].

The economic world heard about the recent crisis with the striking news of the collapse of an American bank, Leman Brothers, which was traditionally well experienced and financially very strong. The crisis in the financial sector had already started in the latter half of 2007 and finally burst out on 23rd September 2008 in the form of the collapse of the bank. As we learn, the current financial crisis in United States originated due to the indiscriminate lending of housing loans in the country's sub-prime mortgage market. The investment in real estate and the housing sector had started in the U S from the early 2000s and by 2007 there was a kind of housing boom in the US economy which led to mismatch between supply and demand. The clients were, of course, the investors with poor financial background and having insufficient financial resources. As there was inadequate demand for houses in the market, the investors in the housing sector could not sell them out profitably and failed to repay the bank loans. Thus, the sub- prime lending resulted in high level defaults.

A recession is a decline in a country's gross domestic product (GDP) growth for two or more quarters of a year. A recession is also preceded by several quarters of slowing down. An economy, which grows over a period of time, tends to slow down the growth as a part of the normal economic cycle. An economy typically expands for 6-10 years and tends to go into a recession for about six months to 2 years. A recession normally takes place when consumers lose confidence in the growth of the economy and spend less. This leads to a decreased demand for goods and services, which in turn leads to a decrease in production, lay-offs and a sharp rise in unemployment. Investors spend less; as they fear stocks values will fall and thus stock markets fall on negative sentiment. Risk aversion, deleveraging and frozen money markets and reduced investor interest adversely affect capital and financial flows, import-export and overall GDP of an economy. In India, the impact of the crisis has been deeper than what was estimated by our policy makers although it is less severe than in other emerging market economies. The extent of impact has been restricted due to several reasons such as-

- Indian financial sector particularly our banks have no direct exposure to tainted assets and its off-balance sheet activities have been limited. The credit derivatives market is in an embryonic stage and there are restrictions on investments by residents in such products issued abroad.
- India's growth process has been largely domestic demand driven and its reliance on foreign savings has remained around 1.5 per cent in recent period.
- India's comfortable foreign exchange reserves provide confidence in our ability to manage our balance of payments notwithstanding lower export demand and dampened capital flows.
- Headline inflation, as measured by the wholesale price index (WPI), has declined sharply. Consumer price inflation too has begun to moderate.
- Rural demand continues to be robust due to mandated agricultural lending and social safety-net programmes.
- India's merchandise exports are around 15 per cent of GDP, which is relatively modest.

Today, India is certainly more integrated into the world economy than ten years ago at the time of the Asian crisis as the ratio of total external transactions (gross current account flows plus gross capital flows) to GDP has increased from 46.8 per cent in 1997-98 to 117.4 per cent in 2007-08. Although Indian banks have very limited exposure to the US mortgage market, directly or through derivatives, and to the failed and stressed financial institutions yet Indian economy is experiencing the knock-on effects of the global crisis, through the monetary, financial and real channels – all of which are coming on top of the already expected cyclical moderation in growth.

2. IMPACT OF GLOBAL MELTDOWN

In India, it is the real economy that got impacted first on account of exports and the drying up of overseas finance for many firms. Banks are affected indirectly by the slowing down of the economy. The direct impact of the crisis on the Indian banking system has been small because Indian banks do not have big exposures to the subprime market. Indian banks are well placed to weather this impact. This is not a contrarian view. The RBI itself exudes optimism about the outlook for Indian banking in its latest Report on Trend and Progress in Banking.

The banking sector in India is largely (70%) dominated by the public sector. Partly as a result, India has not been witness to the kind of crisis of confidence seen in advanced countries. Additionally, strict regulation and conservative policies adopted by the Reserve Bank of India have ensured that banks in India are relatively insulated from the travails of their Western counterparts. However, this cannot be advanced as a reason either for continuance of public sector dominance or for resistance to further financial sector reform. The example of Canada where the private sector plays a major role in the banking sector and is, by and large, less affected by the present financial crisis is a case in point. Indian banks are well-capitalised with a low level of non-performing assets (NPAs), though the level of NPAs is expected to go up as the slowdown begins to bite.

3. REVIEW OF LITERATURE

Literature survey is one of the most vital parts of any search work for the judgment of the relevancy of the research work under consideration .There is no scarcity of works in the area of global financial crisis. A good number of research works has been done on this topic. The following are the instances of some notable works in this area.

i. Reinhert and Rogoff (2008): examined the relationship between the subprime crisis and financial crisis. They stated that the subprime was the reason of the financial crisis.
ii. Subbaro,(2009): opined that the subprime crisis originating in US rapidly spread to other countries and permeated from the financial sector in the real economy through different channels.
iii. Walia Surej (July 2012) had explored that the US meltdown through distinct ways; Examples: Financial markets trade flows, export and import. He added that manufacturing sector, Agriculture, mining, construction, transport, electricity service, finance insurance and real estates' contribution to GDP fall from 9.7% (2006-07) to 9.2% (2007-08) to 6.7% (2008- 09).He further identified tat GDP fell by2.5 over previous year

and explored that in 2009-10 all the sector have shown little recovery except agriculture which s how five lakh workers lost the job particularly in manufacturing ,IT and service sector .Adverse impact were also seen on export and import .The fall in export was more in the last two quarter of 2008-09 and first two quarter of 2009-10.

iv. Naster Marie, stefunia,Alina and Roberta (Oct - 2009): They have explored that the real GDP decline I the fourth quarter of 2008 and first quarter of 2009 at an annual rate of six percent approximately. The unemployment rate of 9.5% was found by June 2009 which was the highest rate since 1983. They also found that the 2007-08 Global crisis was very severe particularly after the collapse of Lehman Brother resultant a huge fall in demand.

4. NEED AND OBJECTIVES OF THE STUDY

Before the establishment of banks, the financial activities were handled by money lenders and Individuals. At that time the interest rates were very high. Again there were no security of public savings and no uniformity regarding loans. So as to overcome such problems the organized banking sector was established, which was fully regulated by the government. The organized banking sector works within the financial system to provide loans, accept deposits and provide other services to their customers. The objectives of the study are

1. To study about the impact of global financial crisis on the selected public sector banks and the private sector banks in India
2. To study about the impact of global financial crisis on pre-recession, post-recession and in the period of recession on the public sector banks and the private sector banks in India.
3. To compare the financial ratios of the public sector banks and the private sector banks in India during pre and post crisis.
4. To have a deep insight on the impact of the crisis on public sector banks and private sector banks' performance in India.
5. To offer suggestions based on the study.

5. HYPOTHESIS FORMULATED

H1:The Operating Income ratio of the selected Public banks and private banks does not differ significantly after the global financial crisis.

H2:The Net Profit per Employee ratio of the selected Public banks and private banks does not differ significantly after the global financial crisis.

H3:The Business per Employee ratio of the selected Public banks and private banks does not differ significantly after the global financial crisis.

H4:The Net Profit Margin ratio of the selected Public banks and private banks does not differ significantly after the global financial crisis.

H5:The Operating Profit Margin ratio of the selected Public banks and private banks does not differ significantly after the global financial crisis.

H6:The Return on Asset ratio of the selected Public banks and private banks does not differ significantly after the global financial crisis.

H7:The Return on Net worth ratio of the selected Public banks and private banks does not differ significantly after the global financial crisis.

H8: The Net Interest Margin ratio of the selected Public banks and private banks does not differ significantly after the global financial crisis.

H9:The Cost to Income ratio of the selected Public banks and private banks does not differ significantly after the global financial crisis

6. RESEARCH METHODOLOGY

The present adopts an analytical and descriptive research design. The data of the selected Banks (for a period of ten years from 2004 to 2013) has been collected from the consolidated balance sheets published by the Money Control Website. A finite sample size of six public sector banks and six private sector banks have been selected for the purpose of the study. The public sector banks are Bank of India, Corporation Bank, Indian Bank, Punjab National Bank, State Bank of India and Vijaya Bank. The private sector banks are HDFC, ICICI, Axis, Kotak Mahindra, Federal Bank and KVB. The variables used in the analysis of the data are Operating Income ratio (OI), Net Profit per Employee ratio (NPE), Business per Employee ratio (BE), Net Profit Margin ratio (NPM), Operating Profit Margin ratio (OPM), Return on Asset ratio (RA), Return on Net worth ratio (RNW), Net Interest Margin ratio (NIM) and Cost to Income (CI). A statistical tool of T test is used for interpreting the results. In view of the objectives of the study listed above, exploratory research design has been adopted. Exploratory research is one, which largely interprets the already available information, and it lays particular emphasis on analysis and interpretation of the existing and available information, and it makes use of secondary data.

Time period of the study

The study was conducted based on the consolidated balance sheets of the Money Control for the period of 10 years from 2004 to 2013.

Tools used for the study

Financial Tools: The financial tools used for the purpose of analysis are Operating Income ratio (OI), Net Profit per Employee ratio (NPE), Business per Employee ratio (BE), Net Profit Margin ratio (NPM), Operating Profit Margin ratio (OPM), Return on Asset ratio (RA), Return on Net worth ratio (RNW), Net Interest Margin ratio (NIM) and Cost to Income (CI).

Statistical Tools: The statistical tool used for testing the hypothesis is T- test.

Sources of Data

This study is based on secondary data. The secondary data consists of the annual reports of six banks from Public sector and six banks from Private sector are considered. The study related to global financial crisis, so the researcher consider before five years data and after five years for the analysis. Various other reports like Journals and Websites were also referred to for the present study.

Sample size: Under the public sector banks six banks and under the private sector banks six banks are selected.

7. ANALYSIS AND INTERPRETATION

Ratios Used For Analysis: The ratios being calculated for the purpose of analysis of financial performance are:

1. Operating Income
2. Net Profit per Employee3. Business per Employee
4. Net Profit Margin
5. Operating Profit Margin
6. Return on Asset
7. Return on Networth
8. Net Interest Margin
9. Cost to Income

7.1 Operating Income (OI)

Operating income is a measurement that shows how much of a company's revenue will eventually become profit. Operating Income is a synonym for earnings before interest and taxes (EBIT) and is also referred to as "operating profit" or "recurring profit."Operating income is calculated as:

Operating income = gross income - operating expenses - depreciation – amortization. The Operating Income ratio of the selected public and private sector banks is summarized in Table 1 and discussed below:

Table 1: Operating Income (OI) of the Public sector banks and the Private Sector banks

Bank Name	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BOI	146.18	136.79	156.98	204.83	256.9	345.98	372.44	397.5	495.73	534.81
Corporation	182.27	182.92	204.5	261.98	340.17	472.75	551.47	616.7	878.81	1002.79
Indian Bank	0	7	47.87	104.37	129.74	129.74	193.34	217.81	284.6	323.26
PNB	361.79	307.68	342.72	396.98	501.69	678.61	770.04	851.81	1074.01	1185.19
SBI	702.8	727.35	775.48	865.36	898.6	1172.59	1312.59	1281.80	1587.4	1749.29
Vijaya	53.82	53	58.15	68.4	98.69	130.81	128.47	123.64	161.2	182.67
HDFC	102.08	116.78	177.49	253.83	338.39	451.36	422.76	428.36	116.28	147.37
ICICI	183.59	163.76	200.88	321.22	354.33	349	282.12	225.5	290.97	347.39
Axis	90.34	82.06	125.98	191.87	239.01	370.45	368.17	369.14	532.3	580.00
Kotak	55.09	43.73	29.13	49.68	82.92	91.63	103.31	58.86	83.44	107.72
Federal	658.21	201.77	180.11	228.15	157.12	204.9	227.49	236.9	324.96	360.55
KVB	391.55	376.65	432.09	199.8	237.92	311.36	362.1	234.71	305.13	395.82

a) Hypothesis Testing

H_0: Operating Income of the selected Public sector Banks and the Private sector banks does not differ significantly after the global financial crisis.

H_1: Operating Income of the selected Public sector Banks and the Private sector banks differ significantly after the global financial crisis.

Table 2: T- test for Operating Income

NAME OF THE BANK	BOI	CORPORATION	INDIAN BANK	PNB	SBI	VIJAYA
T STAT	-15.3481	-6.50332	-15.2988	-7.66089	-8.8509	22.95022
P-VALUE	0.000105	0.002885	0.000106	0.00156	0.0009	2.14E-05
RESULT	Reject	Reject	Reject	Reject	Reject	Accept
NAME OF THE BANK	HDFC	ICICI	AXIS	KOTAK	FEDERAL	KVB
T STAT	-0.99927	-1.44373	-15.7312	-5.94167	0.123976	0.090535
P-VALUE	0.374214	0.222304	9.54E-05	0.004024	0.907314	0.932214
RESULT	Reject	Reject	Reject	Reject	Reject	Reject

b) Interpretation

Operating income of selected public sector banks and selected private sector banks does not differ significantly after the global financial crisis. Except Karur Vysya bank in case of private sector bank. These two bank size is very small when compared to other Public sector bank and private sector banks.

7.2 NET PROFIT PER EMPLOYEE

Net Income per employee is frequently used as the profitability metric as to how companies have been performing over the last couple of years. Higher net income per employees is generally seen as a favorable sign. It is calculated as

Net profit per employee =Net Income (From a company's annual 10-K) / Average Employee Count.

Normalized Net Income per Employee is = Normalized Net Income (From Annual 10-K) / Average Employee Count.

The Net Profit per Employee ratio of the selected public and private sector banks is summarized in Table 3 and discussed below

Table 3: Net Profit per Employee (NPE) of the Public sector banks and the Private Sector banks

BANK NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BOI	234,619.33	79,757.78	166,193.27	270,571.41	494,731.78	748,934.45	438,821.68	625,538.87	602,555.47	652,338.68
CORPORATION	469,662.10	373,586.99	392,457.66	451,292.59	611,928.73	716,221.26	890,398.84	1,019,600.25	1,017,390.06	901,857.37
INDIAN BANK	0	0	0	365,114.71	492,909.50	625,350.51	791,704.65	887,615.66	930,128.31	837,909.91
PNB	188,427.81	241,752.83	247,956.12	268,700.57	365,687.30	531,033.59	686,016.99	777,533.37	786,164.53	750,121.90
SBI	177,792.59	209,450.28	221,692.56	244,962.31	375,498.71	443,001.64	457,618.51	330,608.20	543,309.55	617,837.58
VIJAYA	353,845.66	331,187.71	110,299.14	292,448.81	315,830.32	219,116.62	438,649.98	458,886.20	490,789.74	464,732.32
HDFC	939,516.87	736,766.33	585,280.28	531,312.57	420,266.41	425,977.79	568,101.80	704,261.89	781,992.05	973,906.44
ICICI	1,202,958.56	1,114,000.89	1,000,659.75	933,411.36	0	0	980,055.03	904,241.99	904,241.99	1,341,411.86
AXIS	807,403.54	807,403.54	740,246.76	628,482.46	726,663.27	880,216.45	1,161,983.96	1,281,819.78	1,336,632.87	1,366,568.93
KOTAK	706,077.13	404,240.00	328,418.06	344,793.17	146,966.40	153,387.33	281,556.55	743,801.91	904,210.83	1,007,938.67
FEDERAL	214,215.15	139,150.29	139,150.29	443,131.70	529,193.10	661,154.03	588,329.66	709,895.04	709,895.04	833,251.42
KVB	565,272.38	374,747.07	465,454.95	486,935.79	581,930.17	598,430.60	804,866.11	908,594.01	915,386.92	817,716.05

a) Hypothesis Testing

H_0: Net Profit per Employee of the selected Public sector Banks and the Private sector banks does not differ significantly after the global financial crisis.

H_1: Net Profit per Employee of the selected Public sector Banks and the Private sector banks differ significantly after the global financial crisis.

Table 4: T- test for Net Profit per Employee

NAME OF THE BANK	BOI	CORPORATION	INDIAN BANK	PNB	SBI	VIJAYA
T STAT	-5.9385345	-5.891314076	-6.831506368	-12.1773295	-7.174461409	-1.702768599
P-VALUE	0.004031737	0.00415116	0.002401378	0.000261015	0.00199866	0.163822609
RESULT	Reject	Reject	Reject	Reject	Reject	Reject
NAME OF THE BANK	HDFC	ICICI	AXIS	KOTAK	FEDERAL	KVB
T STAT	-0.26462722	0.05987324	-4.052125775	-0.91810316	-7.412922734	-3.922818736
P-VALUE	0.804372841	0.955128575	0.015448618	0.410515391	0.001767094	0.017206758
RESULT	Reject	Reject	Reject	Reject	Reject	Reject

b) Interpretation

The Net Profit per Employee of the selected public sector banks and private sector banks does not differ significantly after the global financial crisis.

7.3 BUSINESS PER EMPLOYEE

The average business per employee could be an indicator of employee's productivity. The input is no. of employees and output is the total business. Therefore, the ratio indicates input-output relationship. A higher ratio is indicator of greater efficiency of employees. It is calculated as

Business per Employee = Deposit + Advance/ No. of Employees.

The Business per Employee ratio of the selected public and private sector banks is summarized in Table 5 and discussed below

Bank Name	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BOI	27,572,402.38	32,048,000.8	38,245,354.22	49,835,304.5	65,451,913.53	83,669,162.35	101,411,197.12	128,687,190.65	127,610,355.88	159,257,600.51
Corporation	35,300,418.3	42,980,359.68	50,804,260.40	61,558,425.34	79,596,786.86	99,568,789.49	120,236,993.68	146,885,435.32	159,840,046.88	178,980,450.28
Indian Bank	0	0	0	36,870,987.27	49,573,532.42	62,615,382.14	76,799,892.78	93,756,971.83	112,409,434.03	131,225,597.14
PNB	23,251,273.63	28,324,325.67	33,807,794.56	41,591,685.2	51,519,755.22	63,073,993.56	77,138,190.89	97,335,214.43	108,384,959.18	110,643,568.21
SBI	23,406,739.17	28,057,596.25	32,537,711.44	42,075,556.52	53,734,446.54	62,893,336.88	72,297,238.83	75.836,787.78	88,695,813.20	98,484,254.1
Vijaya	27,921,004.47	35,143,722.91	39,042,271.06	55,146,616.59	70,455,829.27	75,922,162.2	90,117,469	106,847,959.26	119,073,537	132,356,954.92
HDFC	89,827,696.85	69,326,190,48	61,923,249.09	54,607,482.42	43,818,884.13	46,314,900.77	56.980,147.24	66,108,672.48	66,911,809.9	77,603,363.18
ICICI	98,283,831.58	108,444,868,78	124,575,574.1	129,973,169.02	0	0	95,026,383.44	77,580,440.08	87,382,046.47	93,911,715.27
Axis	88,802,181.9	100,144,836.8	96,038,950.25	96,600,772.44	100,576,711.24	97,117,338.49	114,133,452.63	125,457,018.95	122,838,188.26	118,619,441.57
Kotak	59,079,028.7	39,825,410.95	36,125,005.28	53,994,663.17	16,140,849.05	18,072,314.28	22,513,655.9	53,263,886.64	64,679,794	73,702,036.37
Federal	33,871,117.24	37,728,524.25	47,339,753.53	56,069,824.40	65,156,231.92	72,779,518.1	80,493,183.38	90,650,561.43	99,134,485.99	101,114,987.77
KVB	35,398,823.8	40,717,796.51	45,738,222.83	50,189,244.07	61,763,558.94	65,073,282.67	78,918,932.1	92,995,879.1	98,820,340.21	101,237,897.62

Table 5: Business per Employee (BE) of the Public sector banks and the Private Sector banks

a) Hypothesis Testing

H_0: Business per Employee of the selected Public sector Banks and the Private sector banks does not differ significantly.

H_1: Business per Employee of the selected Public sector Banks and the Private sector banks differ significantly.

NAME OF THE BANK	BOI	CORPORATION	INDIAN BANK	PNB	SBI	VIJAYA
T stat	-11.19879777	-12.46981689	-15.52504288	-11.17337371	-37.02645957	-16.88376062
P-Value	0.000362014	0.000237858	0.000100485	0.000365234	3.17683E-06	7.21415E-05
Result	Reject	Reject	Reject	Reject	Reject	Reject
NAME OF THE BANK	HDFC	ICICI	AXIS	KOTAK	FEDERAL	KVB
T stat	0.08630277	0.672819724	-4.950004962	-0.324789831	-28.05283624	-11.85310556
P-Value	0.761616833	0.537931768	0.007761178	0.761616833	9.60669E-06	0.000290062
Result	Reject	Accept	Reject	Reject	Reject	Reject

Table 6: T- test for Business per Employee

b) Interpretation

The Business per Employee of the selected public sector banks and private sector banks does not differ significantly after the global financial crisis except for the ICICI bank which is a private sector bank.

7.4 NET PROFIT MARGIN (NPM)

Net Profit Margin indicates how much a company is able to earn after accounting for all the direct and indirect expenses to every rupee of revenue. The ratio is designed to focus attention on the net profit margin arising from business operations before interest and taxis deducted. The convention is to express profit after tax and interest as a percentage of sales. This ratio is calculated by using the following formula and is expressed in percentage terms.

NPM = (Net Profit / Net Sales) *100

The Net profit Margin position of the selected public and private banks is depicted in Table 7 and is discussed below.

Table 7: Net Profit Margin (NPM) of the Public sector banks and the Private Sector banks

BANK NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BOI	14.13	5.09	9.15	9.15	14.87	16.52	8.88	11.44	9.4	8.61
CORPORATION	19.28	15.32	15.15	14.26	15.06	13.16	14.79	15.47	11.56	9.35
INDIAN BANK	0	12.76	14.16	16.93	18.09	17.13	18.71	18.31	14.28	11.38
PNB	11.55	14.53	13.31	12.3	12.95	14.44	16.08	16.42	13.4	11.33
SBI	9.95	11.24	10.79	9.97	11.85	12.25	10.99	9.05	10.99	11.78
VIJAYA	17.62	16.56	5.03	11.17	8.44	4.62	9.1	8.96	8.96	6.46
HDFC	17.52	18.38	15.66	15.66	13.25	11.68	15.23	19.7	18.93	19.18
ICICI	14.46	16.61	14.21	10.76	10.54	9.67	12.79	19.83	19.27	20.77
AXIS	13.3	14.89	13.81	11.6	12.52	13.65	16.85	22.35	19.28	19.05
KOTAK	24	15.73	13.12	8.72	10.28	8.71	8.71	19.52	17.55	16.91
FEDERAL	9.51	6.8	14.6	14.98	13.69	14.28	11.93	14.48	13.97	13.58
KVB	22.87	15.55	17.42	16.18	16.23	14.03	17.04	18.73	15.87	12.97

a) Hypothesis Testing

H_0: Net Profit Margin of the selected Public sector Banks and the Private sector banks does not differ significantly.

H_1: Net Profit Margin of the selected Public sector Banks and the Private sector banks differ significantly.

BANK NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BOI	14.13	5.09	9.15	9.15	14.87	16.52	8.88	11.44	9.4	8.61
CORPORATION	19.28	15.32	15.15	14.26	15.06	13.16	14.79	15.47	11.56	9.35
INDIAN BANK	0	12.76	14.16	16.93	18.09	17.13	18.71	18.31	14.28	11.38
PNB	11.55	14.53	13.31	12.3	12.95	14.44	16.08	16.42	13.4	11.33
SBI	9.95	11.24	10.79	9.97	11.85	12.25	10.99	9.05	10.99	11.78
VIJAYA	17.62	16.56	5.03	11.17	8.44	4.62	9.1	8.96	8.96	6.46
HDFC	17.52	18.38	15.66	15.66	13.25	11.68	15.23	19.7	18.93	19.18
ICICI	14.46	16.61	14.21	10.76	10.54	9.67	12.79	19.83	19.27	20.77
AXIS	13.3	14.89	13.81	11.6	12.52	13.65	16.85	22.35	19.28	19.05
KOTAK	24	15.73	13.12	8.72	10.28	8.71	8.71	19.52	17.55	16.91
FEDERAL	9.51	6.8	14.6	14.98	13.69	14.28	11.93	14.48	13.97	13.58
KVB	22.87	15.55	17.42	16.18	16.23	14.03	17.04	18.73	15.87	12.97

Table 8: T- test for Net Profit Margin

b) Interpretation

The Net Profit Margin of the selected public sector banks and private sector banks does not differ significantly after the global financial crisis except for the Corporation bank and Vijaya bank which are public sector banks and the Karur Vysya bank which is a private sector bank.

7. 5 OPERATING PROFIT MARGIN (OPM)

Operating Profit Margin indicates how effective a company is at controlling the costs and expenses associated with their normal business operations. A rise in the operating profit margin indicates a decline in efficiency. This ratio is used to test the efficiency of the business. This ratio is found out using the following formulae and expressed in percentage terms.

OPM= (Operating Profit / Net Sales) *100

The Operating Profit Margin position of the selected public sector banks and private sector banks is depicted in Table 9 and discussed below:

Table 9: Operating Profit Margin (OPM) of the Public sector banks and the Private Sector banks

BANK NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BOI	8.38	4.85	3.16	3.91	8.37	12.51	5.49	-0.7	-2.25	-3.18
CORPORATION	17.24	21.72	13.48	12.44	10.55	10.98	9.59	1.72	1.72	-1.12
INDIAN BANK	0	9.56	8.47	7.34	8.61	11.71	8.87	5.68	4.2	2.11
PNB	10.72	9.56	21.47	14.1	10.8	9.46	13.26	3.04	1.87	1.26
SBI	8.33	14.04	14.54	11.42	10.11	10.42	6.66	-10.38	-2.48	-1.61
VIJAYA	12.41	23.89	23.89	10.77	10.78	2.13	0.27	-0.16	0.66	-0.23
HDFC	13.33	14.89	14.92	10.39	9.88	8.69	11.98	-2.05	-0.28	-0.36
ICICI	8.7	14.8	13.56	10.79	10.1	10.32	7.28	-5.76	-3.09	-0.05
AXIS	12.18	11.12	11.3	10.19	10.19	11.2	12.24	-8.2	-5.35	-5.04
KOTAK	7.15	13.12	11.92	10.06	11.07	4.37	13.36	0.89	1.74	2.48
FEDERAL	5.81	10.9	7.36	7.25	6.56	5.63	1.37	1.73	4.39	2.81
KVB	19.46	20	18.83	17.96	15.53	16.22	15.72	6.82	5.17	5.17

a) Hypothesis Testing

H_0: Operating Profit Margin of the selected Public sector Banks and the Private sector banks does not differ significantly.

H_1: Operating Profit Margin of the selected Public sector Banks and the Private sector banks differ significantly.

Table 10: T- test for Operating Profit Margin

NAME OF THE BANK	BOI	CORPORATION	INDIAN BANK	PNB	SBI	VIJAYA
T STAT	1.238234	9.665399	0.089831	2.279157	2.538352	4.823174
P-VALUE	0.283335	0.000641	0.93274	0.084865	0.064093	0.008503
RESULT	Accept	Accept	Reject	Accept	Accept	Accept
NAME OF THE BANK	HDFC	ICICI	AXIS	KOTAK	FEDERAL	KVB
T STAT	3.650378	2.825834	2.385433	2.928683	2.821072	4.277278
P-VALUE	0.021764	0.047546	0.075542	0.04287	0.047776	0.012875
RESULT	Accept	Accept	Accept	Accept	Accept	Accept

b) Interpretation

The Operating Profit Margin of all the selected public sector banks and private sector banks differ significantly after the global financial crisis.

7.6 RETURN ON ASSETS (ROA)

Return on assets measures the overall efficiency of capital invested in business. The profitability of the firm is measured by establishing relation of net profit with the total assets of the organization. It indicates what the yield is for every rupee invested in assets. This is computed using the following formula and is expressed in percentage terms.

Return on asset = (Earnings after Taxes and Preferred Dividends / Total Assets) *100

The Return on Assets position of the selected public sector banks and private sector banks is depicted in Table 11 and is discussed below:

BANK NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BOI	1.18	0.35	0.62	0.79	1.12	1.33	0.63	0.7	0.69	0.6
CORPORATION	1.72	1.18	1.09	1.01	1.1	1.02	1.04	0.98	0.92	0.74
INDIAN BANK	0	1.02	1.05	1.35	1.43	1.48	1.53	1.4	1.23	0.97
PNB	1.08	1.11	0.99	0.94	1.02	1.25	1.25	1.25	1.25	0.99
SBI	0.99	0.93	0.89	0.8	0.93	0.94	0.87	0.6	0.87	0.9
VIJAYA	1.7	1.29	0.4	0.78	0.64	0.42	0.72	0.63	0.6	0.52
HDFC	1.2	1.29	1.18	1.25	1.19	1.22	1.32	1.41	1.52	1.68
ICICI	1.3	1.19	1.01	0.9	1.03	0.99	1.1	1.26	1.36	1.55
AXIS	1.15	0.88	0.97	0.85	0.97	1.22	1.39	1.39	1.48	1.52
KOTAK	1.35	1.3	1.16	0.7	1.03	0.96	1.5	1.6	1.65	1.62
FEDERAL	0.9	0.53	1.09	1.16	1.13	1.28	1.06	1.14	1.28	1.17
KVB	22.87	15.55	17.42	16.18	16.23	14.03	17.04	18.73	15.87	12.97

Table 11: Return on Assets (ROA) of the Public sector banks and the Private Sector banks

a) Hypothesis Testing

H_0: Return on Assets of the selected Public sector Banks and the Private sector banks does not differ significantly.

H_1: Return on Assets of the selected Public sector Banks and the Private sector banks differ significantly

Table 12: T- test for Return on Assets

NAME OF THE BANK	BOI	CORPORATION	INDIAN BANK	PNB	SBI	VIJAYA
T STAT	0.158507	2.421544	-1.0663	-2.9027	1.216327	1.49149
P-VALUE	0.881738	0.072642	0.34637	0.043999	0.290725	0.210102
RESULT	Reject	Accept	Reject	Reject	Accept	Accept
NAME OF THE BANK	HDFC	ICICI	AXIS	KOTAK	FEDERAL	KVB
T STAT	-2.39476	-1.0386	-4.4695	-1.60466	-2.28073	0.996946
P-VALUE	0.07478	0.357649	0.011079	0.183838	0.084718	0.375214
RESULT	Reject	Reject	Reject	Reject	Reject	Accept

b) Interpretation

The Return on Assets of the selected public sector banks and private sector banks does not differ significantly after the global financial crisis except for the Corporation bank, State Bank of India and the Vijaya bank which are public sector banks and Karur Vysya bank which is a private sector bank.

7.7 RETURN ON NET WORTH (RONW)

Return on net worth expresses the net profit in terms of the equity shareholders' funds. This ratio is an important yardstick of the performance of equity shareholders since it indicates the return on the funds employed by them. The factor which motivates shareholders to invest in a company is the expectation of an adequate rate of return on their funds and periodically, they will want to assess the rate of return earned in order to decide whether to continue with their investment. This ratio is useful in measuring the rate of return as a percentage of the book value of shareholders equity. It is computed with the help of the following formula and expressed in percentage:

Return on Net Worth = (Net Profit after interest and tax / Net worth) *100

Where, Net Worth= Equity capital + Reserves and surplus

The Return on Net Worth position of the selected public sector banks and private sector banks is depicted in Table 13 and is discussed below:

Table 13: Return on Net worth (RONW) of the Public sector banks and the Private Sector banks

BANK NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BOI	26.29	7.9	14.53	19.54	22.76	25.51	13.6	15.58	13.57	11.49
CORPORATION	18.2	13.16	13.16	14.23	17.38	18.23	20.26	19.79	18.19	14.99
INDIAN BANK	0	21.74	22.24	23.58	21.95	22.72	23.39	21.62	18.91	15.14
PNB	23.63	17.96	15.86	15.18	19	23.52	24.06	22.12	18.52	15.19
SBI	18.19	17.88	15.94	14.5	13.72	15.74	13.89	11.34	13.94	14.26
VIJAYA	32.18	24.77	7.83	17.89	17.15	11.32	19.04	15.76	15.39	14.29
HDFC	18.92	14.71	16.43	17.73	13.83	15.31	13.69	15.47	17.26	18.57
ICICI	20.43	15.97	11.43	12.79	8.94	7.58	7.79	9.35	10.7	12.48
AXIS	24.49	13.89	16.88	18.43	12.21	17.77	15.67	17.83	18.59	15.64
KOTAK	12.98	11.21	13.67	8.5	8.17	7.06	12.4	11.97	13.59	14.37
FEDERAL	21.26	12.58	18.11	19.57	9.39	11.58	9.91	11.49	13.61	13.16
KVB	22.61	13.84	15.52	15.05	17.5	17.46	20.74	19.65	19.17	17.83

a) Hypothesis Testing

H_0: Return on Net worth of the selected Public sector Banks and the Private sector banks does not differ significantly.

H_1: Return on Net worth of the selected Public sector Banks and the Private sector banks differ significantly.

Table 14: T- test for Return on Net worth

NAME OF THE BANK	BOI	CORPORATION	INDIAN BANK	PNB	SBI	VIJAYA
T STAT	0.769835	-1.65356	-0.46485	-1.22212	2.256257	1.036184
P-VALUE	0.484341	0.17356	0.666215	0.288752	0.08704	0.358646
RESULT	Accept	Reject	Reject	Reject	Accept	Accept
NAME OF THE BANK	HDFC	ICICI	AXIS	KOTAK	FEDERAL	KVB
T STAT	0.193226	1.534329	0.045812	-0.43693	1.848396	-0.99096
P-VALUE	0.856197	0.199735	0.965656	0.684712	0.138246	0.377798
RESULT	Reject	Accept	Reject	Reject	Accept	Reject

b) Interpretation

The Return on Net worth of the selected public sector banks and private sector banks does not differ significantly after the global financial crisis except for the Bank of India, State bank India and Vijaya bank which are public sector bank ICICI and Federal bank which are private banks.

7.8 NET INTEREST MARGIN

Net interest margin is a performance metric that examines how successful a firm's investment decisions are compared to its debt situations. A negative value denotes that the firm did not make an optimal decision, because interest expenses were greater than the amount of returns generated by investments.

Net Interest Margin (NIM)=(Investment Returns – Interest Expenses) / Average Earning Assets The Net Interest Margin of the selected public sector banks and private sector banks is depicted in Table 15 and is discussed below:

Table 15: Net Interest Margin (NIM) of the Public sector banks and the Private Sector banks

BANK NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BOI	4.17	3.03	2.9	3	3.01	3.25	2.71	2.22	2.16	1.99
CORPORATION	4.72	4.43	3.78	3.23	2.71	2.76	2.53	2.04	1.92	1.77
INDIAN BANK	0	4.08	3.58	3.69	3.42	3.62	3.7	3.31	3.12	2.77
PNB	5.31	4.15	4.05	3.99	3.56	3.68	3.82	3.12	2.92	3.1
SBI	4.34	4.3	4.18	3.9	3.43	3.26	3.41	2.65	3.24	2.83
VIJAYA	5.11	4.04	3.74	2.86	2.17	2.49	2.58	2.37	1.98	1.69
HDFC	4	4.47	4.93	5.4	5.33	5.61	5.61	3.8	3.63	3.94
ICICI	3.43	3.27	3.29	3.63	3.98	4.25	3.81	2.21	2.26	2.58
AXIS	4.43	2.79	3.41	3.29	3.76	4.16	4.58	2.7	2.8	2.83
KOTAK	3.61	5.28	5.52	4.62	5.46	5.64	5.87	4.12	3.82	3.83
FEDERAL	4.37	3.77	3.41	3.45	3.19	3.87	3.72	3.39	3.22	2.77
KVB	4.97	4.35	4.53	4.22	3.55	3.77	3.53	2.71	2.43	2.47

a) Hypothesis Testing

H_0: Net Interest Margin of the selected Public sector Banks and the Private sector banks does not differ significantly.

H_1: Net Interest Margin of the selected Public sector Banks and the Private sector banks differ significantly.

Table 16: T- test for Net Interest Margin

NAME OF THE BANK	BOI	CORPORATION	INDIAN BANK	PNB	SBI	VIJAYA
T STAT	6.177658	8.083767	-0.42669	3.804271	5.671693	3.775708
P-VALUE	0.003488	0.001272	0.691566	0.019034	0.004767	0.019508
RESULT	Accept	Accept	Reject	Accept	Accept	Accept
NAME OF THE BANK	HDFC	ICICI	AXIS	KOTAK	FEDERAL	KVB
T STAT	0.440917	1.024327	0.248729	0.352374	2.540289	6.750284
P-VALUE	0.682056	0.363583	0.815819	0.74234	0.063961	0.002511
RESULT	Reject	Accept	Reject	Reject	Accept	Accept

b) Interpretation

The Net Profit per Margin of the selected public sector bank differ significantly after the financial crisis except for the Indian Bank. The Net Profit Margin of the selected private sector banks differ significantly after the global financial crisis except for the HDFC, Axis and Kotak Mahindra bank.

7.9 COST TO INCOME

This ratio measures operating expense as a percentage of operating income, is used to gauge efficiency and productivity for banks. Lower ratios generally indicate higher efficiency, but a number of factors can affect the ratio, including a bank's business model and size.

Cost to income is calculated by dividing the operating expenses by the operating income generated i.e., net interest income plus the other income.

Cost to Income = Operating Expenses / Operating Income

Where, Operating Expenses = Employee Cost + Other Operating Expenses Operating Income = Net Interest Income + Other Income

The Cost to Income ratio of the selected public and private sector banks is summarized in Table 17 and discussed below:

Table 17: Cost to Income (CI) of the Public sector banks and the Private Sector banks

BANK NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BOI	39	38.22	37.22	36.03	29.56	26.78	31.54	32.64	28.16	28.14
CORPORATION	36.3	40.7	40.62	35.35	27.87	25.27	26.01	26.77	21.59	21.24
INDIAN BANK	0	40.19	37.32	35.46	31.72	28.65	33.07	33.23	28.99	27.87
PNB	45.6	42.42	35.95	38.47	33.28	31.5	32.5	35.9	31.33	31.06
SBI	37.07	38.75	37.46	37.66	33.04	31.32	35.03	41.23	38	34.09
VIJAYA	38.95	30	39.51	31.47	18.28	25.65	30.13	30.67	21.72	19.66
HDFC	43.19	47.09	49.98	48.59	47.75	43.58	46.27	45.13	38.03	38.02
ICICI	27.7	30.18	32.53	32.59	30.19	31.38	34.86	32.22	28.67	28.67
AXIS	38.88	34.94	36.21	33.35	37.24	34.2	41.38	39.45	33.54	2.83
KOTAK	48.71	49.46	49.83	47.41	43.44	44.84	46.76	41.44	33.59	32.65
FEDERAL	38.94	38.64	35.77	34.52	29.99	34.33	36.61	36.69	28.05	26.36
KVB	29.74	32.08	34.28	29.94	24.65	22.61	23.44	24.8	21.14	22.59

a)Hypothesis Testing

H_0: Cost to Income of the selected Public sector Banks and the Private sector banks does not differ significantly.

H_1: Cost to Income of the selected Public sector Banks and the Private sector banks differ significantly

Table 18: T- test for Cost to Income

NAME OF THE BANK	BOI	CORPORATION	INDIAN BANK	PNB	SBI	VIJAYA
T STAT	3.660769	8.128192	-0.20829	2.626368	0.503514	2.099981
P-VALUE	0.021566	0.001246	0.845179	0.058408	0.641067	0.103655
RESULT	Accept	Accept	Reject	Accept	Reject	Accept
NAME OF THE BANK	HDFC	ICICI	AXIS	KOTAK	FEDERAL	KVB
T STAT	2.289702	-0.32418	0.792631	3.796251	2.533117	5.364065
P-VALUE	0.083885	0.762044	0.472353	0.019165	0.064451	0.00583
RESULT	Accept	Reject	Accept	Accept	Accept	Accept

b) Interpretation

The Cost to Income of the selected public sector banks and private sector banks does not differ significantly after the global financial crisis except for the Indian bank and State Bank of India which are public bank sectors and Corporation bank which is a private sector bank.

8. FINDINGS

1. The operating income of the selected public bank sectors and private sector bank does not differ significantly except Vijaya bank which is a public sector bank and Karur Vysya bank which is a private sector bank.
2. The Net Profit per Employee of the selected public sector banks and private sector banks does not differ significantly after the global financial crisis except for the ICICI bank which is a private sector bank.
3. The Business per Employee of the selected public sector banks and private sector banks does not differ significantly after the global financial crisis except for the ICICI bank which is a private sector bank.
4. The Net Profit Margin of the selected public sector banks and private sector banks does not differ significantly after the global financial crisis except for the Corporation bank and Vijaya

bank which are public sector banks and the Karur Vysya bank which is a private sector bank.

5. The Operating Profit Margin of all the selected public sector banks and private sector banks differ significantly after the global financial crisis.
6. The Return on Assets of the selected public sector banks and private sector banks does not differ significantly after the global financial crisis except for the Corporation bank, State Bank of India and the Vijaya bank which are public sector banks and Karur Vysya bank which is a private sector bank.
7. The Return on Net worth of the selected public sector banks and private sector banks does not differ significantly after the global financial crisis except for the Bank of India, State bank India and Vijaya bank which are public sector bank ICICI and Federal bank which are private banks.
8. The Net Profit per Margin of the selected public sector bank differ significantly after the financial crisis except for the Indian Bank. The Net Profit Margin of the selected private sector banks differ significantly after the global financial crisis except for the HDFC, Axis and Kotak Mahindra bank.
9. The Cost to Income of the selected public sector banks and private sector banks does not differ significantly after the global financial crisis except for the Indian bank and State Bank Of India which are public bank sectors and Corporation bank which is a private sector bank.

9. CONCLUSION

Let us look at the issue from a longer time horizon. During 2003-11, India's GDP grew by a record 8.4%. The Great Recession of 2008 didn't impact India much. The Indian economy staged a 'V' shaped recovery after the minor dip in 2008-09. It is important to note that the benign global economic environment of 2003-07 facilitated fast growth in all Emerging Markets. The record global growth of 4.5% during this period was a rising tide lifting all boats. Sustained export growth of above 20% annually aided India's high GDP growth rate during those boom times.

The Great Recession of 2008, the European debt crisis of 2010 and 2011, the 'Taper Tantrums' of 2013, the commodity crash of 2014 and Brexit impacted the global economy severely and pulled down the growth of Emerging Markets too. International trade slumped impacting exports. India too was impacted. India's growth rate for the 7-year period 2011-17 is only 6.65%. Is this sub 7 % growth rate a new normal for India?

The sharp revival of growth in India during 2009-11 was aided by unprecedented fiscal and monetary stimulus. The savage cut in interest rate by the RBI and the massive fiscal stimulus including farm loan write-offs, which aided the 'V' shaped recovery, led to high level of inflation, which threatened to get entrenched. This forced the RBI to tighten the monetary policy; and the government was forced to cut down on public expenditure to achieve fiscal consolidation.

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