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***A COMPARATIVE STUDY ON THE PRODUCTIVITY PERFORMANCE OF JAMMU
AND KASHMIR BANK AND HDFC BANK LTD***

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Abstract

The present paper analyzed the comparative productivity performance of two private sector banks i.e, Jammu and Kashmir Bank and HDFC Bank Ltd. The study has been analysis published ten- years of data from 2007-08 to 2016-17. Ratio analysis, Mean, compound annual growth rate (CAGR) and paired samples t- test was employed as a statistical tool for proposing to support its conclusion on employee and branch based averages. The differences in unit bank performances and the environmental differences banks stay alive in the cutthroat situation, extremely important to the center of attention on the output and competence of the work. Higher productivity means receiving more output from useless input and low productivity means receiving less by using extra input. The largest part of the economic problem occurred because of low productivity if banks intensely focus to get better productivity, then definitely boost national income, per capita income and improvement in common living standard of public. The researcher takes into account six ratios for measuring productivity performance of Jammu and Kashmir Bank and HDFC Bank Ltd. Deposit per employee, Advances per employee, Business per employee, Deposit per Branch, and Advances per Branch and Total Business per Branch.

Keywords: productivity, per capita income, national income, J&K bank, and HDFC Bank

Introduction

The term productivity refers to goods or services produced per unit of capital, labour or both in a period of time. Productivity is the ability and willingness of an economic unit to produce maximum possible output with given inputs and technology. Productivity is a vital indicator of economic performance of a country. Productivity and profitability of banks

enhance the economic health of the country. Productivity is the measure of how well resources are brought together in the organization in accomplishing a set of results. A bank's productivity is a measure of its effectiveness in using all its resources, viz. labour, financial resources, fixed assets, etc. It is the relationship between output per unit to input employed. In simple words, it is the ratio of output to input. 'Productivity is the quotient obtained by dividing output by one of the factors of production.' It is the balance of factors of production that will give the maximum output with smallest efforts. Productivity is that which people can produce with the least effort

Productivity of employees is straight connected with their emotional as well as physical aspiration to work and if they are motivated then their productivity will be increased. In bank's productivity, we consider establishment expenses and operating expenses as input, business per branch, business per employee and operating profit per employee are taken as the output. The indicators commonly used for assessing productivity of banks are Business per employee/ Branch, advances per employee/Branch, number of accounts per employee/branch, etc. Productivity checks growth of any business which helps the business to be more profitable.

To stay alive in the cutthroat environment, it is extremely important to the center of attention on the output and competence of the work. Higher productivity means receiving more output from useless input and low productivity means getting less by using extra input. Normally the largest part of the economic problem occurred because of low productivity. In India if we will intensely focus to get better productivity, then definitely boost national income, per capita income and improve in general living standard of public

Definition of productivity

The concept of productivity includes all such factors which increase the production or output with the optimum utilization of all the resources. Productivity is the combination of effectiveness and efficiency. Effectiveness is related to output and efficiency is related to resource utilization. Productivity is defined as the supplies and services produced per component of labour, capital or both. The ratio of the amount produced to labour and capital is a total productivity measure. In simple words, productivity is the output per unit of input employed. The basic definition of productivity is:

$$\text{Productivity} = \frac{\text{total output}}{\text{Input}}$$

Review of literature

Kumar and Shreemalu (2008) in their study classified the banks on the basis of Modern Banks (New Private Banks and Foreign Banks) and Traditional Banks (Public Sector Banks and old Private Banks). While covering the period from 1997 to 2008, they have observed that the performance of Modern Banks was much superior to Traditional Banks on the basis of Profit per employee; Employee cost to total business; Employees cost of operating expenses; employee cost to total assets and employee cost to total business. Only in case of Employee cost to total business the performance of Traditional Banks was better than Modern Banks. Mittal and Dhade (2007) in their paper studied that it is difficult to quantify the output of Service Sector. The per branch deposit, advances and business ratios are much lower in the case of Public Sector Banks, when compared with the Private Sector and Foreign Banks. The profitability of Public Sector Banks is also lower but it is improving. Uppal (2011) pointed out the efficiency and productivity of the Indian Banking sector in E-Age technology. Productivity has been measured to see results and concluded that e-age has an impact on the banking industry in India, where private sector banks are leading and public sector banks are lagging behind in adapting technological advancements. Devi (2013) suggest that profitability ratios are employed by the management in order to assess how efficiently they carry on their business operations and also it is suggested for the entire bank to take effective steps to improve the operating efficiency of the business. Geetu Gupta and Amandeep kaur (2013) conducted a study on productivity and performance of public sector banks in India on the basis of Branch Productivity and Employee Productivity for the period of 1991-2010. The statistical tools like Mean, Standard Deviation and Co-efficient of Variation have been used to analyze the productivity. It is suggested that banks need to improve their productivity apart to this improvement in profitability, maintain efficiency level and technology and exploring available cost-effective solutions.

Objectives of the study

1. To study the productivity performance of selected two private sector banks i.e J&K Bank Ltd and HDFC Bank Ltd.
2. To analyze the comparison productivity of both banks during the period of ten years

Period of the study

The present study covers a period of ten years i.e from 2007-08 to 2016-17

Data collection

The present study has been analyzed the productivity of selected two private sector banks i.e J&K Bank Ltd and HDFC Bank Ltd. The data are mainly based on secondary data collected from published annual reports of selected banks, reserve bank of India, websites, journals and other related articles are employed during the study.

Limitations of the study

1. The data are based on annual report of the bank which is secondary data collected from published by RBI & IBA Bulletin from time to time.
2. This study is only related with two private sector banks i.e Jammu and Kashmir Bank and HDFC Bank Ltd.
3. The study covers a period of ten years.

Ratios used for calculating productivity performance:

Productivity of J&K Bank and HDFC Bank can be measured through the following ratios

S.No	Ratio	Calculation
1.	Deposits per employee	Total Deposits / No. of Employees
2.	Advances per employee	Total Advances / No. of Employees
3.	Business volume per employee	Total Business volume /No. of Employees)
4.	Deposits per Branch	Total Deposits /No. of Branches
5.	Advances per Branch	Total Advances) / No. of Branches
6.	Business volume per Branch	Total Business / No. of Branches

Deposit per Employee

The ratio of deposit per employee reveals the deposit position of an employee it is a one of the important indicators that measures the efficiency and productivity performance of banks more the productivity per employee and more will be profits. This ratio is an indicator of the degree of employee's contribution to generation of deposits by each employee to the bank.

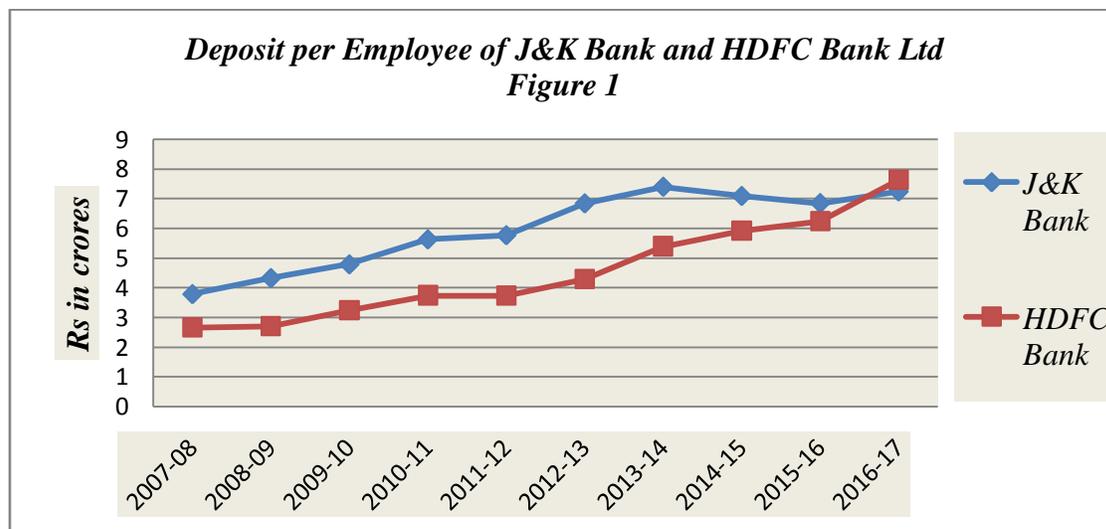
Deposit per employee = Total deposits / No. of employees \times 100

Table 1
Deposit per Employee of J&K Bank and HDFC Bank Ltd.
(2007-08 to 2016-17)

(Rs. in crores)

Years	J&K Bank	HDFC Bank
2007-08	3.78	2.66
2008-09	4.32	2.71
2009-10	4.78	3.23
2010-11	5.62	3.74
2011-12	5.76	3.73
2012-13	6.83	4.29
2013-14	7.39	5.39
2014-15	7.08	5.91
2015-16	6.84	6.24
2016-17	7.23	7.63
Average	5.963	4.553
St. dev.	1.3095	1.6664
C.V	21.960	36.600
CAGR	6.70	11.11

Source: compiled from Annual reports of Respective Banks



Source: Table 1

From the above table 1 and figure 1 indicates the position of deposit per employee of J&k Bank and HDFC Bank during the period of 10 years. J&K Bank showed an impressive trend in deposit per employee, compared to HDFC Bank it lay between a minimum Rs3.78cr to a maximum of Rs7.23cr. And as per the compound annual growth rate (CAGR) HDFC Bank has more growth rate than J&K Bank 11.11% with an average of 4.553 and C.V is 36.600. While as in J&K Bank it covering a growth rate during 10 years of 6.70% with an average of 5.963 and coefficient of variance is 21.960. It can be concluded that the productivity of HDFC Bank is better than J&K Bank in terms of ratio deposit per employee.

Hypothesis:

H₀: There is no significant difference between J&K Bank and HDFC Bank in terms of Average Deposit per employee.

H₁: There is a significant difference between J&K Bank and HDFC Bank in terms of Average Deposit per employee.

Testing of hypothesis using Paired Samples T –Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Deposit per employee of J&K Bank - Deposit per employee of HDFC Bank	1.41000	.84089	.26591	.8084	2.0115	5.303	9	.000

From the analysis of the study it is determined that in case of deposit per employee of J&K Bank and HDFC Bank Ltd, the calculated value of “**t**” is **5.303** at the degree of freedom 9, which is more than the table value at the 5% level of significance (**2.263**). Thus, the null hypothesis “There is no significant difference between J&K Bank and HDFC Bank in terms of the Average deposit per employee” is rejected. Hence, it can be concluded that the alternative hypothesis “There is a significant difference between J&K Bank and HDFC Bank in terms of the Average deposit per employee” is accepted under the study.

Advance per Employee

This ratio indicates the advances per employee. The Higher value of this ratio indicates better productivity and lower value indicates lower productivity. The ratio of advances per employee is an indicator of degree of the employee’s contribution to the loan and advances made by each employee to the banks. The productivity of bank in reality relates to the collection and release of capital. Collection in the sense deposits and release in the sense advances both in connection are the net measurement of productivity. The ratio of advances per employee can be computed by the following formula

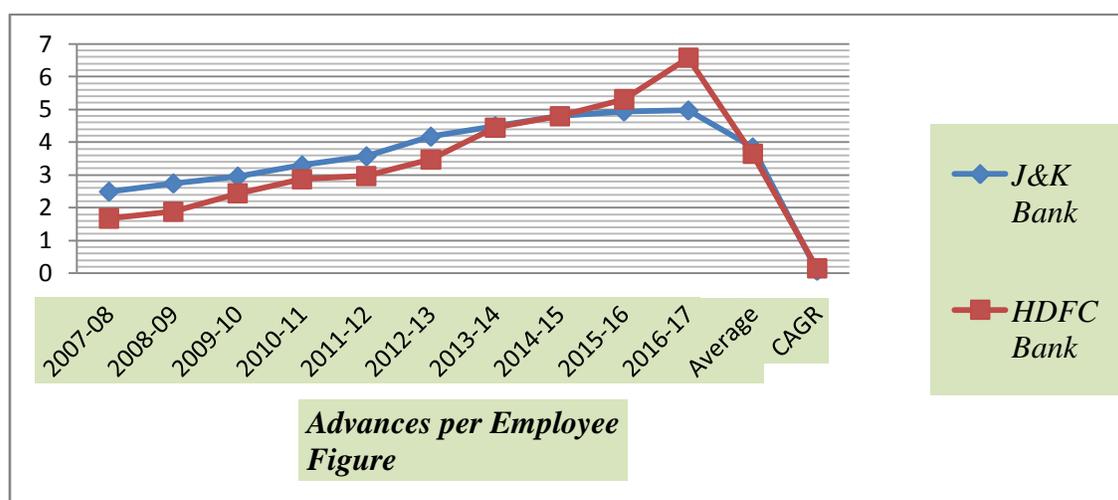
$$\text{Advances per employee} = \text{Total Advances} / \text{No. of employees} \times 100$$

Table 2
Advances per Employee J&K Bank and HDFC Bank Ltd.
(2007-08 to 2016-17)

(Rs. in crores)

Years	J&K Bank	HDFC Bank
2007-08	2.49	1.67
2008-09	2.74	1.88
2009-10	2.95	2.43
2010-11	3.29	2.87
2011-12	3.57	2.96
2012-13	4.17	3.47
2013-14	4.49	4.44
2014-15	4.80	4.79
2015-16	4.94	5.30
2016-17	4.97	6.57
Average	3.841	3.638
St. dev.	0.9510	1.5926
C.V	24.759	43.897
CAGR	7.16%	14.68%

Source: compiled from Annual Reports of Respective Banks



Source: table 5.19

Above table 2 and graph 2 shows the position of advances per employee in connection with deposit and advances that creates the productivity measurement of advances per employee. J&K Bank at an average advances the amount of 3.841cr with the C.V value is 24.759. On the other side HDFC Bank with an average value is 3.638cr and the C.V is 43.897 during the period of study. The CAGR in HDFC Bank doubled than J&K bank i.e, 14.68% in HDFC Bank and 7.16% in J&K Bank. So the conclusion drawn from the analysis higher productivity in HDFC Bank than J&K Bank in terms of ratio advances per employee

Hypothesis:

H₀: There is no significant difference between J&K Bank and HDFC Bank in terms of Average Advances per employee.

H₁: There is a significant difference between J&K Bank and HDFC Bank in terms of Average Advances per employee.

Testing of hypothesis using Paired Samples T -Test

	Paired Differences					T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Advances per employee of J&K Bank- Advances per employee of J&K Bank	.20300	.74543	.2357	-.33025	.73625	.861	9	.412

it is observed from the analysis that in case of advances per employee of J&K Bank and HDFC Bank Ltd, the calculated value of “t” is **.861** at the degree of freedom 9, which is less than the table value at the 5% level of significance (**2.263**). Thus, the null hypothesis “There is no significant difference between J&K Bank and HDFC Bank in terms average Advances per employee” is accepted. Hence, it can be concluded that the alternative hypothesis “There is a significant difference between J&K Bank and HDFC Bank in terms of average Advances per employee” is rejected under the study.

Total Business volume per employee

The business per employee reveals on the whole contributed by an employee in banking business with the total use of advances, deposits and it is a better measure of productivity for the cause that total business per employee combines both deposits and advances. The intermediation system between savers and borrowers becomes complete when deposits mobilized are lent to borrowers engaged in different types of business activities. The Higher value of ratio indicates better productivity and lower ratio indicates low productivity.

Where total Business per employee =

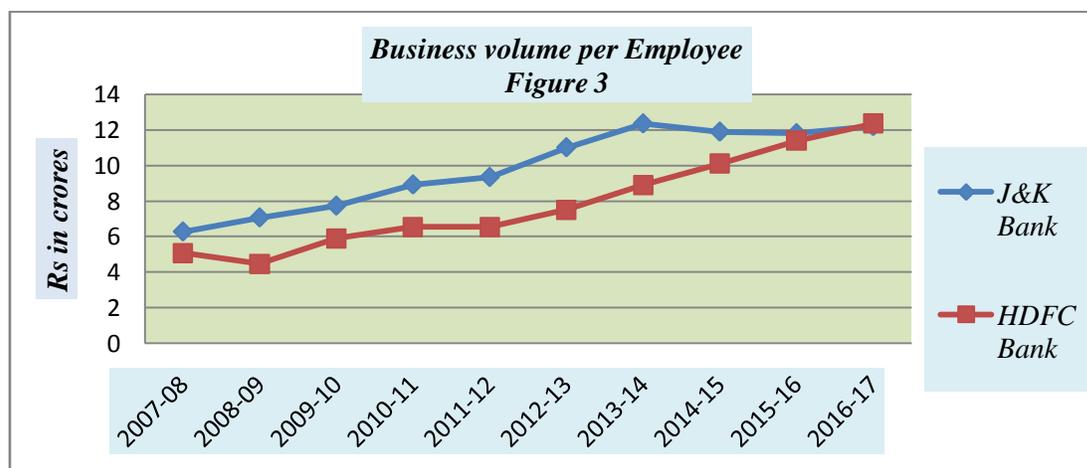
$$\text{Total deposits} + \text{Total advances} / \text{No. of employee's} \times 100$$

Table 3
Total Business Volume per Employee of J&K Bank and HDFC Bank Ltd.
(2007-08 to 2016-17)

(Rs in crores)

<i>Years</i>	<i>J&K Bank</i>	<i>HDFC Bank</i>
2007-08	6.28	5.06
2008-09	7.07	4.46
2009-10	7.73	5.90
2010-11	8.92	6.53
2011-12	9.34	6.54
2012-13	11.01	7.50
2013-14	12.35	8.90
2014-15	11.89	10.10
2015-16	11.80	11.39
2016-17	12.20	12.36
<i>Average</i>	9.859	7.874
<i>St. dev.</i>	2.2894	2.7016
<i>C.V</i>	23.221	34.310
<i>CAGR</i>	6.87%	9.34%

Source: compiled from Annual Reports of Respective Banks



Source: table 3

The above table 3 and graph 3 shows the position of business per employee of J&K Bank and HDFC Bank during the period of ten years data. The J&K bank business per employee starts from Rs 6.28cr in 2007-08 and reaches to a maximum of 12.35cr in 2016-17 with an average of Rs 9.859cr and the C.V in J&K Bank is 23.221 during the period of 10 years growth. On the other side of HDFC Bank business per employee lies between a

minimum from Rs 4.46cr in 2008-09 and maximum of Rs 12.36cr in 2016-17 with an average of 7.221 and C.V are 34.310 during the study period. The CAGR of J&K Bank registered at 6.87%, which is less than HDFC Bank at 9.34%. Based on the CAGR it was found that in HDfC Bank shows better business per employee than J&K Bank during the period from 2007-08 to 2016-17 respectively.

Hypothesis:

H₀: There is no significant difference between J&K Bank and HDFC Bank in terms of Average business volume per employee.

H₁: There is asignificant difference between J&K Bank and HDFC Bank in terms of Averagebusiness volume per employee.

Testing of hypothesis using Paired Samples T -Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Business volume per employee of J&K Bank– Business volume per employee of HDFC Bank	1.985	1.22109	.38614	1.11148	2.85852	5.141	9	.001

It is observed from the analysis that in case of business volume per employee of J&K Bank and HDFC Bank ltd, the calculated value of “t” is **5.141** at the degree of freedom 9, which is more than the table value at the 5% level of significance (**2.263**). Thus, the null hypothesis “There is no significant difference between J&K Bank and HDFC Bank in terms of average business volume per employee” is rejected. Hence, it can be concluded that the alternative hypothesis “There is a significant difference between J&K Bank and HDFC Bank in terms average business volume per employee” is accepted under the study.

Deposit per Branch

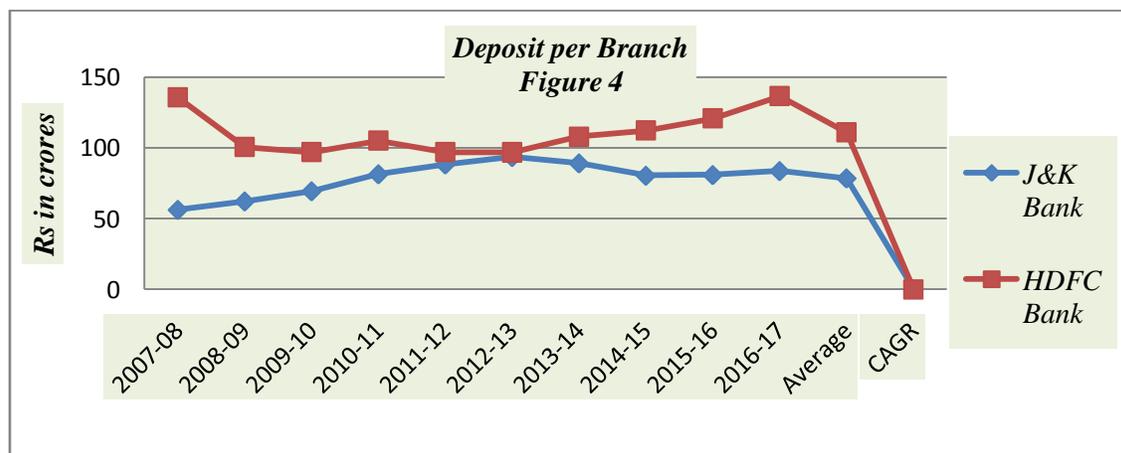
The Branch is the organizational unit set up and opened by head branch in the environment for providing better type of services to the general public. Bank branch in banking term accepted deposits from public and lend to those who needs. It adopts the policies and procedures as per the guidelines provide by the head branch. In order to better individual performance branch reflects the organizational effectiveness and productivity

performance of the bank. More the deposit per branch, better will be the collection of deposits and better are the support from the public.

Table 4
Deposits per Branch J&K Bank and HDFC Bank Ltd.
(2007-08 to 2016-17)

<i>Years</i>	<i>J&K Bank</i>	<i>HDFC Bank</i>
2007-08	56.28	135.62
2008-09	62.27	100.43
2009-10	69.47	97.04
2010-11	81.52	105.02
2011-12	88.46	96.97
2012-13	93.75	96.74
2013-14	89.23	107.95
2014-15	80.48	112.30
2015-16	80.96	120.89
2016-17	83.77	136.50
<i>Average</i>	<i>78.619</i>	<i>110.966</i>
<i>St. dev.</i>	<i>12.166</i>	<i>15.303</i>
<i>C.V</i>	<i>15.474</i>	<i>13.790</i>
<i>CAGR</i>	<i>4.06%</i>	<i>0.06%</i>

Source: compiled from Annual Reports of Respective Banks



Source: Table 4

The table 4 and graph 4 shows the position of deposit per branch of J&K Bank and HDFC Bank. The graph showed a remarkable trend in deposit per branch of HDFC bank during the period of ten years. The deposits per branch in J&K Bank lies at a low of 56.28cr during 2007-08 and registered top in the year 2012-13 of Rs 93.75cr with an average of 78.619cr and C.V is 15.474 during the period of study. While as in HDFC bank it rises

between a minimum from 96.74cr during the year 2012-13 and a maximum of 136.50cr in the year 2016-17 with an impressive average of 110.966 and the C.V are compared to J&K bank 13.790. The CAGR in J&K Bank is 4.06% and in HDFC Bank 0.06% that means highest in J&K bank that indicates the more productivity in J&K Bank compared to HDFC Bank in terms of ratio deposit per branch during the period of study.

Hypothesis:

H₀: There is no significant difference between J&K Bank and HDFC Bank in terms of Average deposit per branch.

H₁: There is a significant difference between J&K Bank and HDFC Bank in terms of Average deposit per branch.

Testing of hypothesis using Paired Samples T -Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Deposit per employee of J&K Bank– Deposit per employee of HDFC Bank	-32.327	22.191	7.0175	-48.201	-16.4521	-4.607	9	.001

It is observed from the analysis that in case of deposit per branch of J&K Bank and HDFC Bank Ltd, the calculated value of “**t**” is **4.607** at the degree of freedom 9, which is more than the table value at the 5% level of significance (**2.263**). Thus, the null hypothesis “There is no significant difference between J&K Bank and HDFC Bank in terms of average deposit per branch” is rejected. Hence, it can be concluded that the alternative hypothesis “There is a significant difference between J&K Bank and HDFC Bank in terms average deposit per branch” is accepted under the study.

Advances per branch

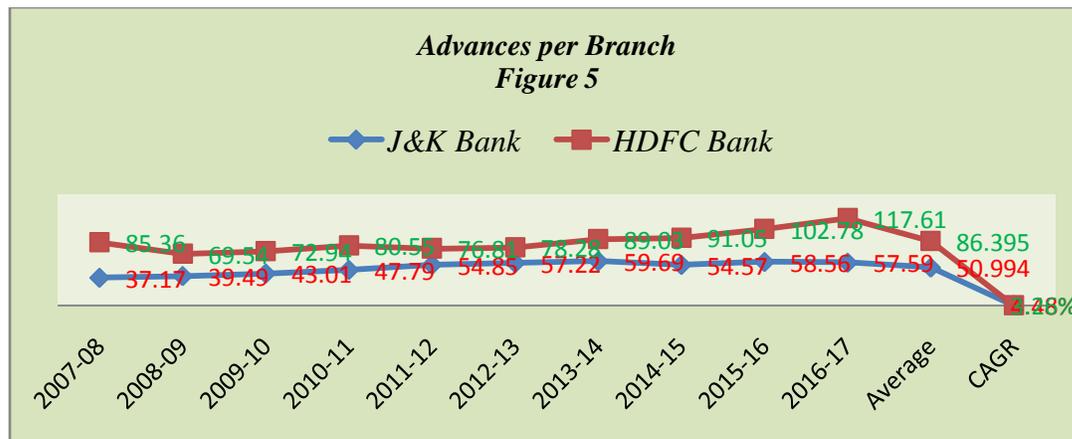
The ratio of advances per branch reveals the position of advances of the bank how much advanced amount having on hand in branch and how much it lends among the customers it can be only known when we calculated advances per branch. The ratio is obtained by total net advances divided by no. of branches multiply by 100.

Table 5
Advances per Branch J&K Bank and HDFC Bank Ltd.
(2007-08 to 2016-17)

(Rs in crores)

<i>Years</i>	<i>J&K Bank</i>	<i>HDFC Bank</i>
2007-08	37.17	85.36
2008-09	39.49	69.54
2009-10	43.01	72.94
2010-11	47.79	80.55
2011-12	54.85	76.81
2012-13	57.22	78.28
2013-14	59.69	89.03
2014-15	54.57	91.05
2015-16	58.56	102.78
2016-17	57.59	117.61
Average	50.994	86.395
St. dev.	8.4343	14.642
C.V	16.539	16.947
CAGR	4.48%	3.26%

Source: compiled from Annual Reports of Respective Banks



Source: 5

The ratio of advances per branch from the table 5 and graph 5 brings information from both banks in J&K Bank it was Rs 37.17cr in the year 2007-08 and achieved a highest growth of advances of Rs59.69cr in 2013-14 with an average Rs50.994 and C.V value are 16.539. On the other side of HDFC bank achieved a minimum growth of advances per branch of Rs69.54cr in 2008-09 and maximum of Rs117.61cr in 2016-17 with an average of 86.395 and C.V value is 16.947% during the period of study. The CAGR of J&K Bank registered 4.48% and in HDFC Bank it has 3.26% which is less than J&K Bank. The conclusion can be

drawn as per CAGR that J&K Bank having more productivity than HDFC bank in terms of ratio advances per branch.

Hypothesis:

H₀: There is no significant difference between J&K Bank and HDFC Bank in terms of Average advances per branch.

H₁: There is a significant difference between J&K Bank and HDFC Bank in terms of Average advances per branch.

Testing of hypothesis using Paired Samples T -Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Advances per branch of J&K Bank – Advances per branch of HDFC Bank	-35.4010	12.1892	3.854	-44.120	-26.681	-9.184	9	.000

It is observed from the analysis that in case of deposit per branch of J&K Bank and HDFC Bank ltd, the calculated value of “t” is **9.184** at the degree of freedom 9, which is more than the table value at the 5% level of significance (**2.263**). Thus, the null hypothesis “There is no significant difference between J&K Bank and HDFC Bank in terms of average advances per branch” is rejected. Hence, it can be concluded that the alternative hypothesis “There is a significant difference between J&K Bank and HDFC Bank in terms of average advances per branch” is accepted under the study.

Total business per branch

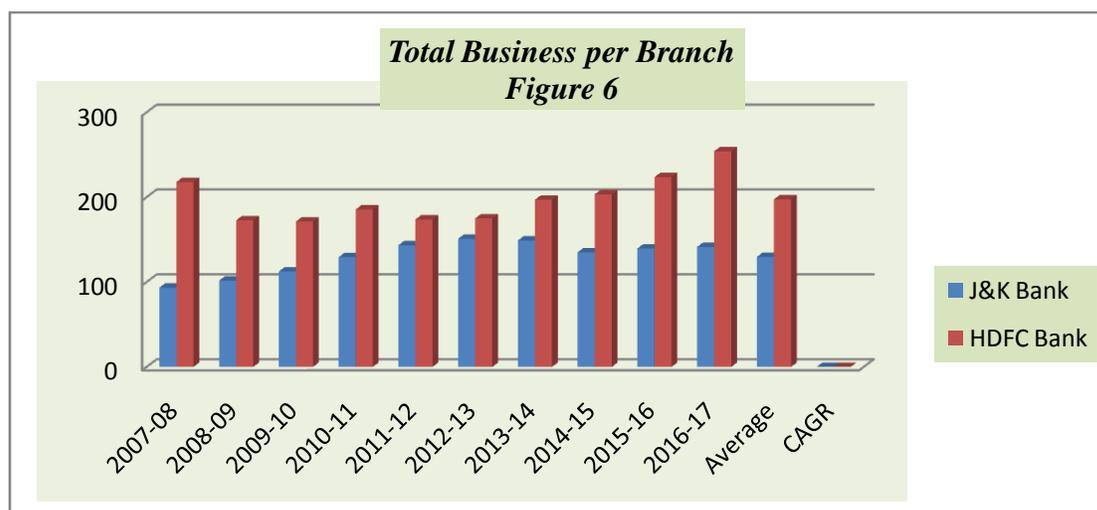
The total business of the bank may be likely by adding advances to deposits. The total business of the bank may be estimated by adding advances to deposits. In the present study, the total business per branch is taken as one of the indicators to measure productivity. Higher value of ratio of total business per branch indicates higher productivity and lower value of ratio indicates lower productivity.

$$\text{Business per branch} = \text{Volume of business/No. of branches}$$

Table 6
Total business per Branch J&K Bank and HDFC Bank Ltd
(2007-08 to 2016-17)

<i>Years</i>	<i>J&K Bank</i>	<i>HDFC Bank</i>
2007-08	93.45	217.86
2008-09	101.76	172.81
2009-10	112.48	171.39
2010-11	129.32	185.57
2011-12	143.32	173.78
2012-13	150.97	175.02
2013-14	148.93	196.98
2014-15	135.05	203.35
2015-16	139.53	223.67
2016-17	141.36	254.11
<i>Average</i>	129.617	197.454
<i>St. dev.</i>	20.166	27.568
<i>C.V</i>	15.558	13.961
<i>CAGR</i>	4.23%	1.55%

Source: compiled from Annual reports of respective banks



Source: Table 6

The above table 6 and figure 6 indicates position of total business per branch of J&K Bank HDFC Bank for the period from 2007-08 to 2016-17. Total business per branch of J&K Bank rose from 93.45cr in the year 2007-08 and reached the highest in the year 2012-13 was Rs 150.97cr with an average of 129.617cr per branch and the C.V are 15.558. While in HDFC Bank total business per branch rose from 217.86cr and registered a maximum of Rs 254.11cr in the year 2016-17 with an average of 197.454cr per branch and C.V are 13.961

during the period of study. The CAGR reveals the position of both banks J&K Bank registered 4.23% and HDFC Bank registered 1.55%. Analysis proves that J&K Bank having more productivity than HDFC Bank in terms of total business per branch.

Hypothesis:

H₀: There is no significant difference between J&K Bank and HDFC Bank in terms of Average total business per branch.

H₁: There is a significant difference between J&K Bank and HDFC Bank in terms of Average total business per branch.

Testing of hypothesis using Paired Samples T -Test

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	VAR00001 - VAR00002	-67.837	32.341	10.22732	-90.97280	-44.70120	-6.633	9	.000

It is observed from the analysis that in case of deposit per branch of J&K Bank and HDFC Bank ltd, the calculated value of “t” is **6.633** at the degree of freedom 9, which is more than the table value at the 5% level of significance (**2.263**). Thus, the null hypothesis “There is no significant difference between J&K Bank and HDFC Bank in terms of average total business per branch” is rejected. Hence, it can be concluded that the alternative hypothesis “There is a significant difference between J&K Bank and HDFC Bank in terms of average total business per branch” is accepted under the study

Conclusion

Nowadays the achievement of success in the competitive banking world and to become a leading bank in the banking sector productivity is very important for remaining at top level and to achieve development and progression without the accomplishment of productivity profitability will affect. The conclusion based on employees productivity ratios and analysis of data reveals that business per employee, advances per employee, and deposit per employee in terms of these ratios. HDFC Bank registered better performance than a J&K bank with CAGR values 11.11%, 14.68%, and 9.34%. But in terms of branch productivity ratios deposit per branch, advances per branch and total business per J&K Bank attained a significant performance than HDFC Bank with CAGR values 4.06%, 4.48%, and 4.23%. J&K

Bank has to improve the employee productivity so that productivity performance will be better and more efficient. J&K bank must introduce extra employees in those areas where employee productivity of branches not significant and results are unfavorable and one of the important task that J&K Bank has to make rotation of employees so that profitability and performance will improved.

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