Chapter VIII

PROFITABILITY AND EFFICIENCY OF KOPBs AND THEIR DETERMINANTS: AN ECONOMETRIC STUDY

In this chapter an effort is made to analyse comparative financial performance of Kerala-based Private sector Banks (KOPBs) and also to identify the major determinants of their profitability and efficiency. For the sake of comparison and more meaningful conclusions, besides KOPBs the overall (average) figures of all Old Private Sector Banks (OPBs)\(^I\) and New generation Private sector Banks (NPBs)\(^II\) in India are also studied.

For studying the profitability of KOPBs, the most commonly used measure viz. Operating Profit Ratio (OPR) has been selected. OPR is given by the ratio of operating profit to the total assets. Based on the economic rationale explained in Chapter III, OPR is sought to be expressed in terms of the following parameters viz. (i) PRIOR – the share of priority sector advances in the total advances portfolio, (ii) GSEC – the ratio of the investment in government securities to the total assets, (iii) NOM – the ratio of non-interest income to the total assets, (iv) ASST – the total assets in Rs. Crores (Logarithm), (v) RURAL – the ratio of the number of rural and semi-urban branches to the number of urban and metropolitan branches. Accordingly, the econometric model for OPR is expressed as follows:

$$\text{OPR} = \alpha_1 + \alpha_2 (\text{ASST}) + \alpha_3 (\text{PRIOR}) + \alpha_4 (\text{GSEC}) + \alpha_5 (\text{NOM}) + \alpha_6 (\text{RURAL}) + \varepsilon$$

where, \(\alpha_i\) is the estimated coefficients (\(\alpha_1\) is the intercept term, a constant) and \(\varepsilon\) is the error term.

For analysing the efficiency, non-interest income (NIM) is chosen, because NIM is a measure of credit risk management capability also. The model is as follows:

$$\text{NIM} = \beta_1 + \beta_2 (\text{ASST}) + \beta_3 (\text{PRIOR}) + \beta_4 (\text{GSEC}) + \beta_5 (\text{NOM}) + \beta_6 (\text{RURAL}) + \mu$$

where, \(\beta_i\) is the estimated coefficients (\(\beta_1\) is the intercept term, a constant) and \(\mu\) is the error term. (All the other parameters are as defined for the model for OPR above).
PART – I: ANALYSIS OF PROFITABILITY AND EFFICIENCY

8.1. Catholic Syrian Bank (CSB)

Table: 8.1 shows the values of the various parameters used for the analysis for the ten years period, FY 2000 to FY 2009 in respect of CSB. Using the econometric model for OPR as mentioned earlier, regression is done using SPSS (Version 16.0) and the summary of the results obtained are shown in Table 8.2. From Table 8.2, it follows that there is no significant association between OPR and any of the other explanatory variables. But, it may be noted that maximum association of OPR is with non-interest income (NOM) and that this positive relationship is reasonably strong as is evidenced by a significance level that is near to 10% LOS (0.132), even if not strictly significant at 10% LOS. Moreover, this positive association of OPR and NOM is as expected as per the underlying economic rationale. (See, Chapter III, Theoretical Framework).

<table>
<thead>
<tr>
<th>Year</th>
<th>NIM</th>
<th>OPR</th>
<th>ASST</th>
<th>PRIOR</th>
<th>GSEC</th>
<th>RURAL</th>
<th>NOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>11.3057</td>
<td>1.0200</td>
<td>5.4301</td>
<td>28.8883</td>
<td>0.2594</td>
<td>2.5600</td>
<td>1.6848</td>
</tr>
<tr>
<td>2001</td>
<td>11.0212</td>
<td>1.7139</td>
<td>5.4753</td>
<td>25.4608</td>
<td>0.2657</td>
<td>2.4634</td>
<td>1.7008</td>
</tr>
<tr>
<td>2002</td>
<td>10.4100</td>
<td>2.8000</td>
<td>5.5414</td>
<td>25.5000</td>
<td>0.3035</td>
<td>2.2174</td>
<td>3.0600</td>
</tr>
<tr>
<td>2003</td>
<td>9.4536</td>
<td>3.0451</td>
<td>5.5869</td>
<td>20.8054</td>
<td>0.3967</td>
<td>2.2151</td>
<td>3.4104</td>
</tr>
<tr>
<td>2004</td>
<td>8.7400</td>
<td>3.0200</td>
<td>5.6342</td>
<td>26.8900</td>
<td>0.3703</td>
<td>1.9904</td>
<td>2.9100</td>
</tr>
<tr>
<td>2005</td>
<td>8.4229</td>
<td>1.7976</td>
<td>5.6469</td>
<td>31.4417</td>
<td>0.2626</td>
<td>1.5738</td>
<td>1.0587</td>
</tr>
<tr>
<td>2006</td>
<td>7.9300</td>
<td>0.8000</td>
<td>5.6789</td>
<td>34.0800</td>
<td>0.2510</td>
<td>1.5194</td>
<td>0.8700</td>
</tr>
<tr>
<td>2007</td>
<td>8.2600</td>
<td>1.2400</td>
<td>5.7243</td>
<td>34.0000</td>
<td>0.2373</td>
<td>1.4126</td>
<td>0.7100</td>
</tr>
<tr>
<td>2008</td>
<td>8.5476</td>
<td>1.3051</td>
<td>5.7753</td>
<td>39.3019</td>
<td>0.2299</td>
<td>1.4521</td>
<td>1.0744</td>
</tr>
<tr>
<td>2009</td>
<td>8.5632</td>
<td>1.2123</td>
<td>5.8476</td>
<td>38.3414</td>
<td>0.2321</td>
<td>1.4490</td>
<td>1.5319</td>
</tr>
</tbody>
</table>

Table 8.1: Major Performance Parameters – Catholic Syrian Bank
(Source: Computed from the data available in, Report on Trend and Progress of Banking in India, Reserve Bank of India for FY 2000 to FY 2009).
A similar regression analysis for NIM has been done using the econometric model mentioned earlier, for CSB. The results of this regression analysis are tabulated in Table 8.3.
<table>
<thead>
<tr>
<th>Model Variables</th>
<th>Un-standardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>.457</td>
<td>13.122</td>
<td>.035</td>
<td>.974</td>
</tr>
<tr>
<td>ASST</td>
<td>1.398</td>
<td>2.306</td>
<td>.150</td>
<td>.606</td>
</tr>
<tr>
<td>RURAL</td>
<td>2.891</td>
<td>.637</td>
<td>1.076</td>
<td>4.540</td>
</tr>
<tr>
<td>PRIOR</td>
<td>-.034</td>
<td>.043</td>
<td>-.168</td>
<td>-.795</td>
</tr>
<tr>
<td>GSEC</td>
<td>-14.915</td>
<td>3.633</td>
<td>-.715</td>
<td>-4.106</td>
</tr>
<tr>
<td>NOM</td>
<td>.393</td>
<td>.228</td>
<td>.316</td>
<td>1.727</td>
</tr>
</tbody>
</table>

Dependent Variable: NIM  (* Significant at 5% LOS)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>R</th>
<th>R Square</th>
<th>Durbin - Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIM</td>
<td>9.2654</td>
<td>1.2193</td>
<td>0.99</td>
<td>0.98</td>
<td>2.815</td>
</tr>
<tr>
<td>ASST</td>
<td>5.6341</td>
<td>0.1306</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RURAL</td>
<td>1.8850</td>
<td>0.4536</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRIOR</td>
<td>3.0471</td>
<td>6.0085</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GSEC</td>
<td>0.2809</td>
<td>0.0584</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOM</td>
<td>1.8011</td>
<td>0.9796</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Table 8.3: Results of Regression Analysis (Dependent Variable: NIM) for CSB.

From Table 8.3, it is observed that there is statistically significant (5% LOS) and positive association between NIM and intensity of rural branches (RURAL). Significant (5% LOS) and negative association between NIM and investment in government securities (GSEC) is also indicated for CSB. Both these relationships are in conformity with the underlying economic theory. Besides, there is some indication of a positive relation between NIM and NOM also, though not statistically significant.
8.2. Dhanalakshmi Bank (DB)

Table 8.4 shows the values of the various parameters used for the analysis for the ten years’ period, FY 2000 to FY 2009 in respect of DB. Using the econometric model for OPR as noted in the beginning of the chapter, regression is done using SPSS (Version 16.0) and the summary of the results obtained are shown in Table 8.5. From Table 8.5, it follows that there is a significant (5% LOS) association between OPR and NOM. It may be noted here that the positive association as above between of OPR and NOM is as expected as per the underlying economic theory.

<table>
<thead>
<tr>
<th>Year</th>
<th>NIM</th>
<th>NOM</th>
<th>OPR</th>
<th>ASST</th>
<th>PRIOR</th>
<th>GSEC</th>
<th>RURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>10.9684</td>
<td>1.6601</td>
<td>2.0200</td>
<td>5.2025</td>
<td>30.8648</td>
<td>0.2570</td>
<td>2.3500</td>
</tr>
<tr>
<td>2001</td>
<td>10.7676</td>
<td>1.5776</td>
<td>1.0368</td>
<td>5.2290</td>
<td>29.4892</td>
<td>0.2392</td>
<td>2.2826</td>
</tr>
<tr>
<td>2002</td>
<td>10.1100</td>
<td>3.2800</td>
<td>2.8200</td>
<td>5.2759</td>
<td>28.9100</td>
<td>0.2471</td>
<td>2.1176</td>
</tr>
<tr>
<td>2003</td>
<td>9.4759</td>
<td>3.5133</td>
<td>3.1809</td>
<td>5.3235</td>
<td>25.0463</td>
<td>0.2457</td>
<td>1.8621</td>
</tr>
<tr>
<td>2004</td>
<td>8.4000</td>
<td>2.5600</td>
<td>2.9400</td>
<td>5.3882</td>
<td>27.1900</td>
<td>0.3133</td>
<td>1.7581</td>
</tr>
<tr>
<td>2005</td>
<td>7.5518</td>
<td>0.5782</td>
<td>0.7250</td>
<td>5.4223</td>
<td>29.9319</td>
<td>0.2413</td>
<td>1.2195</td>
</tr>
<tr>
<td>2006</td>
<td>7.6400</td>
<td>0.8000</td>
<td>0.8400</td>
<td>5.4547</td>
<td>35.5700</td>
<td>0.2337</td>
<td>1.1765</td>
</tr>
<tr>
<td>2007</td>
<td>7.8300</td>
<td>0.9400</td>
<td>1.2300</td>
<td>5.5376</td>
<td>38.4800</td>
<td>0.2150</td>
<td>1.1477</td>
</tr>
<tr>
<td>2008</td>
<td>8.3542</td>
<td>1.1237</td>
<td>1.1896</td>
<td>5.6056</td>
<td>43.2327</td>
<td>0.2289</td>
<td>1.2625</td>
</tr>
<tr>
<td>2009</td>
<td>8.4420</td>
<td>1.6404</td>
<td>1.8170</td>
<td>5.7515</td>
<td>32.8607</td>
<td>0.2459</td>
<td>1.2625</td>
</tr>
</tbody>
</table>

Table 8.4: Major Performance Parameters – Dhanalakshmi Bank

(Source: Computed from the data available in, Report on Trend and Progress of Banking in India, Reserve Bank of India for FY 2000 to FY 2009).
A similar regression analysis for NIM has been done using the econometric model mentioned in the beginning of the chapter, for DB. The results of this regression analysis are tabulated in Table 8.6.

Table 8.5: Results of Regression Analysis (Dependent Variable: OPR) for DB.
<table>
<thead>
<tr>
<th>Model Variables</th>
<th>Un-standardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-7.466</td>
<td>2.574</td>
<td>-2.901</td>
<td>.044</td>
</tr>
<tr>
<td>ASST</td>
<td>2.469</td>
<td>.468</td>
<td>.336</td>
<td>5.274</td>
</tr>
<tr>
<td>RURAL</td>
<td>3.593</td>
<td>.175</td>
<td>1.360</td>
<td>20.497</td>
</tr>
<tr>
<td>PRIOR</td>
<td>.004</td>
<td>.012</td>
<td>.015</td>
<td>.290</td>
</tr>
<tr>
<td>GSEC</td>
<td>-11.645</td>
<td>1.894</td>
<td>-.236</td>
<td>-6.149</td>
</tr>
<tr>
<td>NOM</td>
<td>-.060</td>
<td>.058</td>
<td>-.048</td>
<td>-1.027</td>
</tr>
</tbody>
</table>

Dependent Variable: NIM

(* Significant at 5% LOS)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>R</th>
<th>R Square</th>
<th>Durbin – Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIM</td>
<td>8.9540</td>
<td>1.2841</td>
<td>0.99</td>
<td>0.98</td>
<td>2.50</td>
</tr>
<tr>
<td>ASST</td>
<td>5.4191</td>
<td>0.1746</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RURAL</td>
<td>1.6439</td>
<td>0.4862</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRIOR</td>
<td>3.2158</td>
<td>5.5208</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GSEC</td>
<td>0.2467</td>
<td>0.0261</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOM</td>
<td>1.7673</td>
<td>1.0262</td>
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</tr>
</tbody>
</table>

Table 8.6: Results of Regression Analysis (Dependent Variable: NIM) for DB.

From Table 8.6, it is observed that there is strong, statistically significant (5% LOS) and positive association of NIM with ASST and RURAL. Likewise, strong, significant (5% LOS) and positive relationship of NIM with GSEC is also indicated. All these relationships are as expected and are in conformity with the underlying economic theory as explained in Chapter III (Theoretical Framework).
8.3. Federal Bank (FB)

Table: 8.7 shows the values of the various parameters used for the analysis for the ten years’ period, FY 2000 to FY 2009 in respect of FB. Using the econometric model for OPR as noted in the beginning of the chapter, regression is done using SPSS (Version 16.0) and the summary of the results obtained are shown in Table 8.8. From Table 8.8, it follows that there is a strong, significant (5% LOS) and positive association between OPR and NOM. Similarly, significant (10% LOS) and negative relation is indicated between OPR and investment in government securities (GSEC). Besides, there is reasonably high level of negative association between OPR and intensity of priority sector advances (PRIOR) as is evident from the significance level of 0.107 which is near 10% LOS, even if not strictly statistically significant at 10% LOS.

<table>
<thead>
<tr>
<th>Year</th>
<th>NIM</th>
<th>NOM</th>
<th>OPR</th>
<th>ASST</th>
<th>PRIOR</th>
<th>GSEC</th>
<th>RURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>11.2495</td>
<td>1.6878</td>
<td>1.7300</td>
<td>5.8810</td>
<td>35.4274</td>
<td>0.2336</td>
<td>2.6200</td>
</tr>
<tr>
<td>2001</td>
<td>11.1940</td>
<td>1.5235</td>
<td>2.2779</td>
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</tr>
<tr>
<td>2002</td>
<td>10.9900</td>
<td>2.3200</td>
<td>3.2200</td>
<td>6.0062</td>
<td>31.9200</td>
<td>0.2588</td>
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</tr>
<tr>
<td>2003</td>
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<td>2.0982</td>
<td>3.1459</td>
<td>6.0864</td>
<td>31.3988</td>
<td>0.2833</td>
<td>1.9195</td>
</tr>
<tr>
<td>2005</td>
<td>7.4590</td>
<td>1.3275</td>
<td>2.5075</td>
<td>6.2259</td>
<td>32.1471</td>
<td>0.3014</td>
<td>1.5598</td>
</tr>
<tr>
<td>2006</td>
<td>7.6700</td>
<td>1.1600</td>
<td>2.4100</td>
<td>6.3148</td>
<td>34.3000</td>
<td>0.2751</td>
<td>1.5368</td>
</tr>
<tr>
<td>2007</td>
<td>7.9500</td>
<td>1.2500</td>
<td>2.6800</td>
<td>6.3995</td>
<td>37.2600</td>
<td>0.2406</td>
<td>1.5023</td>
</tr>
<tr>
<td>2008</td>
<td>8.7347</td>
<td>1.3706</td>
<td>2.7575</td>
<td>6.5120</td>
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<td>0.2399</td>
<td>1.4571</td>
</tr>
<tr>
<td>2009</td>
<td>9.2923</td>
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<td>3.5309</td>
<td>6.5894</td>
<td>37.7990</td>
<td>0.2135</td>
<td>1.4343</td>
</tr>
</tbody>
</table>

Table 8.7: Major Performance Parameters – Federal Bank

(Source: Computed from the data available in, Report on Trend and Progress of Banking in India, Reserve Bank of India for FY 2000 to FY 2009).
A similar regression analysis for NIM has been done using the econometric model mentioned in the beginning of the chapter, for FB. The results of this regression analysis are tabulated in Table 8.9.
<table>
<thead>
<tr>
<th>Model Variables</th>
<th>Un-standardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>34.598</td>
<td>16.521</td>
<td>-</td>
<td>2.094</td>
</tr>
<tr>
<td>ASST</td>
<td>-3.017</td>
<td>2.276</td>
<td>-.496</td>
<td>-1.326</td>
</tr>
<tr>
<td>RURAL</td>
<td>-0.022</td>
<td>1.205</td>
<td>-.006</td>
<td>-.018</td>
</tr>
<tr>
<td>PRIOR</td>
<td>-0.026</td>
<td>0.127</td>
<td>-.046</td>
<td>-.207</td>
</tr>
<tr>
<td>GSEC</td>
<td>-32.372</td>
<td>8.518</td>
<td>-.713</td>
<td>-3.801</td>
</tr>
<tr>
<td>NOM</td>
<td>1.637</td>
<td>0.466</td>
<td>.468</td>
<td>3.509</td>
</tr>
</tbody>
</table>

Dependent Variable: NIM  (* Significant at 5% LOS)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>R</th>
<th>R Square</th>
<th>Durbin – Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIM</td>
<td>9.3217</td>
<td>1.4595</td>
<td>0.98</td>
<td>0.97</td>
<td>2.88</td>
</tr>
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<td>ASST</td>
<td>6.214</td>
<td>0.2399</td>
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</tr>
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<td>0.4281</td>
<td></td>
<td></td>
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<td>34.0326</td>
<td>2.5446</td>
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</tr>
<tr>
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<td></td>
</tr>
<tr>
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<td>1.6363</td>
<td>0.4177</td>
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</table>

Table 8.9: Results of Regression Analysis (Dependent Variable: NIM) for FB.

From Table 8.9, it is observed that there is strong, statistically significant (5% LOS) and positive association of NIM with NOM. Likewise, there is strong, significant (5% LOS) and negative relationship between NIM and investments in government securities (GSEC). Both these are as expected and are in conformity with the underlying economic rationale.
8.4. South Indian Bank (SIB)

Table 8.10 shows the values of the various parameters used for the analysis for the ten years’ period, FY 2000 to FY 2009 in respect of SIB. Using the econometric model for NIM as noted in the beginning of the chapter, regression is done using SPSS (Version 16.0) and the summary of the results obtained are shown in Table 8.11. From Table 8.11, it follows that there is strong, positive and significant (5% LOS) association of OPR with NOM. This positive association is as expected, and is in conformity with the underlying economic rationale.

<table>
<thead>
<tr>
<th>Year</th>
<th>NIM</th>
<th>NOM</th>
<th>OPR</th>
<th>ASST</th>
<th>PRIOR</th>
<th>GSEC</th>
<th>RURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>11.6859</td>
<td>1.8579</td>
<td>2.0000</td>
<td>5.6477</td>
<td>31.9739</td>
<td>0.3131</td>
<td>2.6200</td>
</tr>
<tr>
<td>2001</td>
<td>11.1888</td>
<td>1.5016</td>
<td>2.2147</td>
<td>5.7174</td>
<td>29.7420</td>
<td>0.3197</td>
<td>2.5429</td>
</tr>
<tr>
<td>2002</td>
<td>10.4600</td>
<td>2.3500</td>
<td>2.9400</td>
<td>5.8166</td>
<td>28.4300</td>
<td>0.2846</td>
<td>2.2712</td>
</tr>
<tr>
<td>2003</td>
<td>9.2408</td>
<td>2.5719</td>
<td>3.0524</td>
<td>5.8824</td>
<td>27.7878</td>
<td>0.3427</td>
<td>2.2541</td>
</tr>
<tr>
<td>2004</td>
<td>8.0600</td>
<td>2.7900</td>
<td>2.8700</td>
<td>5.9663</td>
<td>30.7500</td>
<td>0.3869</td>
<td>2.0292</td>
</tr>
<tr>
<td>2005</td>
<td>7.5701</td>
<td>1.0932</td>
<td>1.8389</td>
<td>5.9767</td>
<td>31.8667</td>
<td>0.3037</td>
<td>1.5523</td>
</tr>
<tr>
<td>2006</td>
<td>7.5000</td>
<td>0.7100</td>
<td>1.5400</td>
<td>6.0345</td>
<td>35.5900</td>
<td>0.2268</td>
<td>1.5143</td>
</tr>
<tr>
<td>2007</td>
<td>7.9800</td>
<td>0.8400</td>
<td>2.0600</td>
<td>6.1352</td>
<td>37.0400</td>
<td>0.2147</td>
<td>1.4643</td>
</tr>
<tr>
<td>2008</td>
<td>8.4003</td>
<td>0.9276</td>
<td>1.7608</td>
<td>6.2327</td>
<td>34.2440</td>
<td>0.2101</td>
<td>1.4673</td>
</tr>
<tr>
<td>2009</td>
<td>9.0033</td>
<td>0.8767</td>
<td>1.9143</td>
<td>6.3093</td>
<td>33.9964</td>
<td>0.1985</td>
<td>1.4140</td>
</tr>
</tbody>
</table>

Table 8.10: Major Performance Parameters – South Indian Bank

(Source: Computed from the data available in, *Report on Trend and Progress of Banking in India*, Reserve Bank of India for FY 2000 to FY 2009).
A similar regression analysis for NIM has been done using the econometric model mentioned in the beginning of the chapter, for SIB. The results of this regression analysis are tabulated in Table 8.12.
From Table 8.12, it is observed that there is strong, statistically significant (5% LOS) and positive association of NIM with intensity of rural branches (RURAL). This positive relationship of NIM and RURAL is as expected and is in conformity with the underlying economic rationale.
8.5. All Old Private Sector Banks (OPBs) in India

Table 8.13 shows the values of the various parameters used for the analysis for the ten years’ period (FY 2000 to FY 2009) in respect of OPBs. Using the econometric model for NIM as noted in the beginning of the chapter, regression is done using SPSS (Version 16.0) and the summary of the results obtained are shown in Table 8.14. From Table 8.14, it follows that there is strong, statistically significant (5% LOS) and positive association of OPR with NOM for OPBs in India, in general. This positive relationship in turn is as expected and is in conformity with the underlying economic rationale.

<table>
<thead>
<tr>
<th>Year</th>
<th>NIM</th>
<th>NOM</th>
<th>OPR</th>
<th>ASST</th>
<th>PRIOR</th>
<th>GSEC</th>
<th>RURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>10.8959</td>
<td>1.7712</td>
<td>2.0180</td>
<td>5.4249</td>
<td>33.8841</td>
<td>0.2309</td>
<td>1.7280</td>
</tr>
<tr>
<td>2001</td>
<td>10.5722</td>
<td>1.4399</td>
<td>2.0309</td>
<td>5.4773</td>
<td>32.3651</td>
<td>0.2452</td>
<td>1.6634</td>
</tr>
<tr>
<td>2002</td>
<td>10.0744</td>
<td>2.4991</td>
<td>2.8473</td>
<td>5.5371</td>
<td>31.0195</td>
<td>0.2700</td>
<td>1.4127</td>
</tr>
<tr>
<td>2003</td>
<td>9.1837</td>
<td>2.3833</td>
<td>2.8839</td>
<td>5.5892</td>
<td>30.4819</td>
<td>0.2810</td>
<td>1.3630</td>
</tr>
<tr>
<td>2004</td>
<td>8.5027</td>
<td>2.2873</td>
<td>3.0527</td>
<td>5.6496</td>
<td>32.7073</td>
<td>0.2976</td>
<td>1.2852</td>
</tr>
<tr>
<td>2005</td>
<td>7.5000</td>
<td>1.0818</td>
<td>1.8948</td>
<td>5.6895</td>
<td>33.1745</td>
<td>0.2531</td>
<td>1.0658</td>
</tr>
<tr>
<td>2006</td>
<td>7.5680</td>
<td>1.0020</td>
<td>1.8687</td>
<td>5.7454</td>
<td>33.8093</td>
<td>0.2275</td>
<td>1.0311</td>
</tr>
<tr>
<td>2007</td>
<td>7.8493</td>
<td>0.8987</td>
<td>1.9587</td>
<td>5.8225</td>
<td>34.7900</td>
<td>0.2101</td>
<td>1.0056</td>
</tr>
<tr>
<td>2008</td>
<td>8.3460</td>
<td>1.2242</td>
<td>2.0391</td>
<td>5.9087</td>
<td>37.7333</td>
<td>0.2131</td>
<td>1.0581</td>
</tr>
<tr>
<td>2009</td>
<td>8.8213</td>
<td>1.2258</td>
<td>2.1669</td>
<td>5.9876</td>
<td>36.2846</td>
<td>0.2240</td>
<td>1.0522</td>
</tr>
</tbody>
</table>

Table 8.13: Major Performance Parameters – OPBs in India.

(Source: Computed from the data available in, Report on Trend and Progress of Banking in India, Reserve Bank of India for FY 2000 to FY 2009).
A similar regression analysis for NIM has been done using the econometric model mentioned in the beginning of the chapter, for OPBs. The results of this regression analysis are tabulated in Table 8.15.

Table 8.14: Results of Regression Analysis (Dependent Variable: OPR) for OPBs.
Technology in Banks and Its Impact on Operational Efficiency and Risk Management

From Table 8.15, it is observed that there is strong, positive and significant association of NIM with RURAL (5% LOS); and with quantum of asset (ASST) and NOM both at 10% LOS. With GSEC also there is significant (10% LOS) negative association. These relationships are as expected and are in conformity with the underlying economic rationale.
8.6. All New Generation Private Sector Banks (NPBs) in India

Table 8.16 shows the values of the various parameters used for the analysis for the ten years’ period (FY 2000 to FY 2009) in respect of NPBs. Using the econometric model for NIM as noted in the beginning of the chapter, regression is done using SPSS (Version 16.0) and the summary of the results obtained are shown in Table 8.17. From Table 8.17, it follows that there is a strong, significant (5% LOS) and positive association of OPR of NPBs with non-interest income (NOM). This observation is as expected as per the underlying economic rationale.

<table>
<thead>
<tr>
<th>Year</th>
<th>NIM</th>
<th>NOM</th>
<th>OPR</th>
<th>ASST</th>
<th>PRIOR</th>
<th>GSEC</th>
<th>RURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>8.8947</td>
<td>1.8427</td>
<td>2.6275</td>
<td>5.9688</td>
<td>14.9602</td>
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<td>0.5075</td>
</tr>
<tr>
<td>2001</td>
<td>9.0011</td>
<td>1.5034</td>
<td>2.0545</td>
<td>6.1145</td>
<td>13.7731</td>
<td>0.2152</td>
<td>0.4907</td>
</tr>
<tr>
<td>2002</td>
<td>7.2675</td>
<td>1.9750</td>
<td>2.4000</td>
<td>6.3901</td>
<td>12.0475</td>
<td>0.2216</td>
<td>0.4194</td>
</tr>
<tr>
<td>2003</td>
<td>8.0891</td>
<td>2.4300</td>
<td>2.6762</td>
<td>6.4500</td>
<td>17.5991</td>
<td>0.2221</td>
<td>0.4012</td>
</tr>
<tr>
<td>2004</td>
<td>7.4550</td>
<td>2.2975</td>
<td>2.8775</td>
<td>6.5714</td>
<td>22.7900</td>
<td>0.2426</td>
<td>0.3947</td>
</tr>
<tr>
<td>2005</td>
<td>6.6580</td>
<td>1.6748</td>
<td>2.3317</td>
<td>6.6766</td>
<td>23.9180</td>
<td>0.2102</td>
<td>0.2573</td>
</tr>
<tr>
<td>2006</td>
<td>6.9350</td>
<td>1.6525</td>
<td>2.1075</td>
<td>6.8023</td>
<td>30.4025</td>
<td>0.2417</td>
<td>0.2466</td>
</tr>
<tr>
<td>2007</td>
<td>7.8200</td>
<td>1.6850</td>
<td>2.1225</td>
<td>6.9208</td>
<td>33.3650</td>
<td>0.2243</td>
<td>0.3718</td>
</tr>
<tr>
<td>2008</td>
<td>8.3653</td>
<td>1.9282</td>
<td>2.2043</td>
<td>7.0332</td>
<td>30.2118</td>
<td>0.2108</td>
<td>0.4072</td>
</tr>
<tr>
<td>2009</td>
<td>8.9513</td>
<td>2.0193</td>
<td>2.4769</td>
<td>7.1132</td>
<td>30.4978</td>
<td>0.2166</td>
<td>0.4485</td>
</tr>
</tbody>
</table>

Table 8.16: Major Performance Parameters – NPBs in India

(Source: Computed from the data available in, Report on Trend and Progress of Banking in India, Reserve Bank of India for FY 2000 to FY 2009).
A similar regression analysis for NIM has been done using the econometric model mentioned in the beginning of the chapter, for OPBs. The results of this regression analysis are tabulated in Table 8.18.
Table 8.18: Results of Regression Analysis (Dependent Variable: NIM) for NPBs.

From Table 8.18, it is observed that there is strong, statistically significant (5% LOS) and positive association of NOM with intensity of rural branches (RURAL). This result is as expected and is in conformity with the underlying economic rationale.
8.7. Overall Picture of Regression Analysis for OPR and NIM

Here, an attempt is made to assimilate the findings of the individual regressions tests done as discussed in the foregoing paragraphs.

<table>
<thead>
<tr>
<th>Dependent Variable: OPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Variables</td>
</tr>
<tr>
<td>ASST</td>
</tr>
<tr>
<td>RURAL</td>
</tr>
<tr>
<td>PRIOR</td>
</tr>
<tr>
<td>GSEC</td>
</tr>
<tr>
<td>NOM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent Variable: NIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASST</td>
</tr>
<tr>
<td>RURAL</td>
</tr>
<tr>
<td>PRIOR</td>
</tr>
<tr>
<td>GSEC</td>
</tr>
<tr>
<td>NOM</td>
</tr>
</tbody>
</table>

Table 8.19: Overall Results of Regression Analysis

Legends:
- S-P-5% : Statistically Significant at 5% LOS, Positive association
- S-N-5% : Statistically Significant at 5% LOS, Negative association
- S-P-10% : Statistically Significant at 10% LOS, Positive association
- S-N-10% : Statistically Significant at 10% LOS, Negative association
- NS-P : Not Statistically Significant, still high significance near to 10% LOS, Positive
- NS-N : Not Statistically Significant, still high significance near to 10% LOS, Negative
- N : Not Significant, but Negative association
To summarise, it may be stated that there is a clear and significant positive relationship between OPR and non-interest income (NOM) suggesting that operating profits of banks are triggered (driven) significantly by non-interest income. NOM of all the banks under study except CSB and also that of both the bank groups (viz. OPBs and NPBs) have strong, positive, significant (5% LOS) association with their respective OPR. In the case of CSB also, there is reasonably high positive association which is near 10% LOS.

Another notable finding is that there is strong, negative association of net interest margin (NIM) of banks with investment in government securities (GSEC), suggesting that higher GSEC may reduce NIM of banks. This negative relationship is significant at 5% LOS for all the banks and bank groups, except SIB where the significance is near 10% LOS and in the case of NPBs where it is negative but not significant. Another notable finding is the strong, significant (5% LOS) and positive association of NIM of banks with intensity of rural branches, suggesting rural branches are positively contributing to net interest margin. But, FB is an exception to this trend, where there is no significant relationship observed.

**PART – II: TESTING OF HYPOTHESES (3 TO 8)**

**Hypothesis – 3:**

*Non-interest income is a significant determinant of profitability of KOPBs measured in terms of Operating Profit Ratio (OPR).*

The third hypothesis as mentioned above is sought to be tested here. From Table 8.19, it is quite clear that non-interest income (represented by NOM, the non-interest margin) has got a strong and positive association with Operating Profit Ratio (OPR) at 5% LOS. This association is equally strong in respect of the general case of all OPBs and all NPBs. However, for Catholic Syrian Bank (CSB) though the relationship is obvious, it is not statistically significant even at 10% LOS. For CSB it is significant at ‘near 10% LOS’. Thus,

*The Third Hypothesis stands Accepted.*
Hypothesis – 4:

Non-interest income is a significant determinant of operational efficiency of KOPBs measured in terms of Net Interest Margin (NIM).

The fourth hypothesis as mentioned above is sought to be tested here. From Table 8.19, it is quite clear that non-interest income (represented by NOM, the non-interest margin) has got a strong and positive association with NIM at 5% LOS only in respect of one bank viz. Federal Bank (FB). The case of all OPBs in India also supports this relationship, but only at 10% LOS. In respect of any of the other three KOPBs and also the case of all NPBs in India, there is no significant relation between NOM and NIM. Thus, the hypothesis as above cannot be generalized. Accordingly,

The Fourth Hypothesis stands Rejected.

Hypothesis – 5:

Share of priority sector advances in the total advances adversely affects the profitability of KOPBs measured in terms of Operating Profit Ratio (OPR).

The fifth hypothesis as mentioned above is sought to be tested here. From Table 8.19, it is quite clear that share of priority sector advances in the total advances portfolio (denoted by PRIOR) has got no significant relationship with the profitability measured in terms of Operating Profit Ratio (OPR). Only, in respect of Federal Bank (FB) such a negative association is found, but it is not significant even at 10% LOS. Thus, it may be concluded that PRIOR does not affect OPR, in general. Accordingly,

The Fifth Hypothesis stands Rejected.

Hypothesis – 6:

Share of priority sector advances in the total advances adversely affects the operational efficiency of KOPBs measured in terms of Net Interest Margin (NIM).
The sixth hypothesis as mentioned above is sought to be tested here. From Table 8.19, it is quite clear that share of priority sector advances in the total advances portfolio (denoted by PRIOR) has got no significant relationship with the operational efficiency measured in terms of Net Interest Margin (NIM). None of the KOPBs under study, as well as the general case of OPBs and NPBs, has got any such significant relationship. Naturally,

The Sixth Hypothesis stands Rejected.

Hypothesis – 7:

Share of rural (and semi-urban) branches in the total branch network adversely affects the profitability of KOPBs measured in terms of Operating Profit Ratio (OPR)

The seventh hypothesis as mentioned above is sought to be tested here. From Table 8.19, it is quite clear that share of rural (including semi-urban) branches in the total branch network (denoted by RURAL) has got no significant relationship with the profitability measured in terms of Operating Profit Ratio (OPR). This is applicable in respect of all KOPBs and also the general case of OPBs and NPBs in India. Accordingly,

The Seventh Hypothesis stands Rejected.

Hypothesis – 8:

Share of rural (and semi-urban) branches in the total branch network adversely affects the operational efficiency of KOPBs measured in terms of Net Interest Margin (NIM).

The eighth hypothesis as mentioned above is sought to be tested here. From Table 8.19, it is quite clear that share of rural (including semi-urban) branches in the total branch network (denoted by RURAL) has got a strong and positive relationship with the operational efficiency measured in terms of Net Interest Margin (NIM) and is applicable even in the general case of OPBs and NPBs in India. However, the case of Federal Bank does not support the above relationship.
Thus, contrary to the general belief, rural branches in general are supporting the operational efficiency and credit risk management of private sector banks, both old and new generation. Rural branches are not at all adversely affecting NIM. Accordingly,

*The Eighth Hypothesis stands Rejected.*

REFERENCES

(3) *Report of Trend and Progress of Banking in India* (for FY 2000 to FY 2009), Reserve Bank of India, Govt. of India. (2000 to 2009). (www.rbi.org.in)

END NOTES

OPBs here means the set of all Old Private Sector Banks (OPBs) functioning in India throughout the ten years’ period (FY 2000 to FY 2009) under study. However, banks which have undergone consolidation during the study period have not been considered for this purpose for the sake of consistency. For instance, Bank of Punjab Ltd., an erstwhile OPB has since become Centurion Bank of Punjab Limited after merger with a new generation private sector bank viz. Centurion Bank. Though Centurion Bank of Punjab is still categorised as an OPB, the same has not been considered. As per the above criterion, 15 OPBs have been functioning throughout the period under study and these OPBs alone are considered for analysis. These 15 OPBs include the four Kerala-based OPBs (KOPBs) that are under focused study viz. (i) Catholic Syrian Bank (CSB), (ii) Dhanalakshmi Bank (DB), (iii) Federal Bank (FB), and (iv) South Indian Bank (SIB). The remaining 11 OPBs are based in other states in India and include: (i) Bank of Rajasthan, (ii) City Union Bank, (iii) Jammu & Kashmir Bank, (iv) Karnataka Bank, (v) Karur Vysya Bank, (vi) Lakshmi Vilas Bank, (vii) Nainital Bank, (viii) Ratnakar Bank, (ix) SBI Commercial and International Bank, (x) Tamil Nadu Mercantile Bank, and (xi) ING Vysya Bank. The average values of performance parameters of the above 15 OPBs have been considered as the representative figures for all OPBs in India and are taken for analysis.
II NPBs here means the set of all New Generation Private Sector Banks (NPBs) that have been functioning throughout the ten years’ period (FY 2000 to FY 2009) under study. NPBs were given registration only since the mid-1990s (FY 1995 and afterwards) by the Reserve Bank of India. These banks being governed by the regulatory policies of the Government pertaining to the ongoing era of financial sector reforms in India, their commitment towards priority sector and such other directed credit policies of the Government are much lesser than those of Public Sector Banks (PSBs) and Old Private Sector Banks (OPBs). Besides, these new banks are equipped with latest technological platforms. In short, NPBs are more or less comparable with foreign banks (FBs) functioning in India, rather than PSBs or OPBs. As already mentioned above, only the NPBs that have been functioning throughout the ten years’ period under study (FY 2000 to FY 2009) are considered for analysis, and as such the newer NPBs (like, Kotak Mahindra Bank, Yes Bank etc.) have not been considered. As per the above criterion, four NPBs viz. (i) Axis Bank (formerly, UTI Bank), (ii) HDFC Bank, (iii) ICICI Bank, and (iv) Indusind Bank have been considered. The average values of the relevant parameters for each year for the period under study are taken as representative of all NPBs in India.