

CHAPTER - VII

SUMMARY AND SUGGESTIONS

The banking sector of Ethiopia has shown a remarkable progress in terms of branch networking and capital after the financial reform that was introduced in 1994 in general and over the study period in particular. Though the sector is not opened to foreign nationals, it is significantly transformed from the absolute ownership of the state to a system that allows domestic private banks to operate alongside the government owned banks as a result of the 1994 financial reform. The sector plays a vital financial intermediary role in the country's development endeavors through mobilization of funds from within and outside the country and channeling such funds to various sectors of the economy. It also facilitates transactions at international and enhances the payment and settlement system in the country's economy. The health of the banking sector is very critical to the health of the country's overall economy at large. To keep imparting such a vital role in the country's overall economy, the banks need to be efficient and profitable. Factors that affect the financial performance of the banks need to be empirically identified and appropriate measures need to be taken by bank managers, bank regulators and policy makers.

The Ethiopian banking sector has not benefited enough from empirical research so far. The limited stock of previous studies on Ethiopian banks have emphasized on aspects other than bank efficiency. None of these studies have looked into areas related to efficiency with particular reference to the technical efficiency, allocative efficiency, cost efficiency, and profit efficiency aspects of banks operating in Ethiopia. The previous

studies have not attempted to adequately identify the factors that affect the financial performance of the Ethiopian banking sector. Thus, this study provides a comprehensive understanding on efficiency of the banks and on factors that influence the financial performance of the banks over the period 1999-00 to 2010-11. The findings of the study will help bank managers to take measures for enhancing the efficiency and profitability of the banks. The study will also help policy makers, bank regulators and supervisors to devise strategies aimed at enhancing the efficiency, profitability and competitiveness of the Ethiopian banking sector.

The study has used various measures of efficiency such as technical, pure technical, scale, allocative, cost and profit efficiencies of Ethiopian commercial banks. The literature provides two broad approaches to measure bank efficiency: Financial ratios, and frontier approaches. Though financial ratios are easy to compute, they are duly criticized and considered by many as disingenuous gauges of efficiency for they fail to control for product mix or input prices of banks. Moreover, since financial ratios take one variable compared to another, they do not yield sufficient information concerning the various dimensions of banks. Therefore, frontier approaches, which are believed to overcome the shortcoming of financial ratios, are used by researchers in the recent times. According to Berger and Humphrey (1997), frontier approaches are more likely to be superior compared to the traditional financial ratios in measuring bank efficiency.

The original sources of the frontier methods can be traced to the early works of Farrell (1957). According to the researcher, the efficiency frontier could be estimated using the sample data employing either a non-parametric or a parametric approach. One of the most known non-parametric approaches to measuring efficiency that is developed

by Charnes et al. (1978) is the Data Envelopment Analysis (DEA). The DEA frontier is constructed as piecewise linear combinations connecting a set of best-practice observations. Firms (banks) that fall on the frontier enveloped by the DEA model are considered to be relatively efficient, while those that fall off the frontier are regarded as inefficient. One of the major deficiencies of non-parametric approaches is the failure to consider measurement error and luck as factors affecting efficiency estimates. Thus, the DEA attributes all deviations from the frontier to inefficiency.

Another frontier approach to measuring bank efficiency is the parametric approach, such as the stochastic frontier approach (SFA). The SFA is an econometric methodology in which deviations of a bank's actual cost from predicted cost are assumed to be due to random error and inefficiency, each of which is assumed to have a particular statistical distribution. While the former (random error) is assumed to have a normal distribution, the later (inefficiency) is assumed to have a half normal distribution. SFA and DEA differ in how they separate the deviation from the best practice bank's cost. The DEA assumes that there is no error and attribute any deviation from the "best practice" bank's cost to inefficiency. On the other hand, SFA assumes that there is error and attributes any deviation from the "best practice" bank's cost to the random error and inefficiency.

The DEA approach has attracted the attention of many researchers and academicians compared to the SFA. This is so because DEA requires no specification of the functional form of the production function, handles multiple inputs and outputs, needs no assumption as to the relative importance of the inputs and outputs, and provide targets for enhancement for the inefficient units. Moreover, while SFA requires a large sample

size, DEA works well with small sample sizes. According to Maudos et al. (2002), of the entire techniques for measuring efficiency, DEA requires the smallest number of observations, but the SFA specifies a large number of parameters and requires a large number of observations. Though DEA is highly sensitive to outliers and takes for granted data to be free of measurement errors for which it is highly criticized, the DEA is found to be appropriate for the present study as the number of commercial banks ranges between 8 to 14 banks. The DEA is found to be appropriate for examining the performance of Ethiopian commercial banks due to the institutional structure in which they operate. Commercial banks in Ethiopia provide various financial services which complicates the use of parametric approach to measure technical efficiency.

Since banks provide a number of services, selection of the appropriate input and output variables is extremely important in measuring bank efficiency. Though the literature does not provide a clear cut parameter, there are two main approaches that most previous researchers have depended in their selection of input and output variables: production approach and intermediation approach. The study has used the intermediation approach since it examines the efficiency of all commercial banks in Ethiopia as suggested by Berger and Humphrey (1997). Moreover, since deposit mobilization is one of the major performance indicators of commercial banks in Ethiopia and since Ethiopian commercial banks incur costs to mobilize deposits and have the mandate to inculcate the saving habits of the society, deposits are considered as output in the DEA model. In addition to deposits, loans and advances are considered as bank outputs while fixed assets and labor expenditure are taken up as bank inputs.

In an attempt to identify the key factors that influence the financial performance of the banks, the study has used ROAA as a measure of bank performance against which a number of internal and external factors are regressed. The internal factors include capital adequacy, bank size, liquidity, loan intensity, credit risk, operational efficiency, and diversification. The external factors include market share, market concentration, real GDP growth rate, and annual inflation rate. In analyzing the factors, the fixed effects model has been preferred to the random effects model following the Hausman test.

Major findings of the study

Overall technical, pure technical and scale efficiencies of the banks

- The study found that the average overall technical efficiency of the banks ranges between 65.7 percent in 1999-00 and 66.14 percent in 2010-11. On average the overall technical efficiency of the banks over the study period is found to be 75.65 percent. The result shows that an average commercial bank could have used only 75.65 percent of the actual inputs it used to produce the same level of output over the study period.
- On average, the pure technical efficiency of the banks over the study period was 85.35 percent, while the corresponding figure for scale efficiency is 89.10 percent. This shows that, on average, 14.65 percent of the overall technical inefficiency over the study period is due to poor utilization of resources (pure technical inefficiency) and 10.9 percent of the overall technical inefficiency is due to inappropriate choice of scale of bank operation (scale inefficiency).

- The study revealed that 73.7 percent of the banks are found to be scale inefficient, while only 26.3 percent of the total banks observed over the study period are found to be scale efficient and thus exhibited constant return to scale. Of the total banks observed over the study period, 63.6 percent of them exhibited increasing return to scale and 10.1 percent of them exhibited decreasing return to scale.
- The study revealed that increasing return to scale is the most predominant scale inefficiency of Ethiopian commercial banks. This indicates that most of the commercial banks in Ethiopia are excessively small for scale of their operation and thus are operating at sub-optimal scale of operation.
- The banks' overall technical efficiency and scale efficiency are found to have no significance difference over the period 1999-00 to 2010-11, indicating no significant change in overall technical efficiency and scale efficiency of the banks over the study period.
- The pure technical efficiency of the banks is found to have statistically significance difference between 1999-00 and 2010-11, implying that the banks have shown improvement in terms of input utilization over the study period.

Cost efficiency of the banks

- The yearly average cost efficiency of the banks ranges between 65.70 percent in 1999-00 and 68.88 percent in 2010-11. On average, the cost efficiency of the banks during the period 1999-00 to 2010-11 is found to be 71.64 percent, indicating that an average commercial bank has incurred 28.36 percent more costs than required to produce the given level of output over the period under study.

This implies that an average commercial bank could have cut its costs down by 28.36 percent while producing the same level of output over the study period.

- The cost efficiency of the banks is found to have no statistically significant difference between 1999-00 and 2010-11. The banks have not shown statistically significant change in their cost efficiency over the study period.

Profit efficiency of the banks

- The yearly average profit efficiency of the banks ranges between 67.75 percent in 1999-00 and 61.76 percent in 2010-11. The study reveals that the average profit efficiency of the commercial banks is 76.02 percent over the period 1999-00 to 2010-11. This implies that an average commercial bank has earned 76 percent of what a profit efficient bank has earned over the study period.
- The profit efficiency of the banks is found to have statistically significant difference between 1999-00 and 2010-11. Thus, the banks have shown statistically significant change in their profit efficiency over the study period.

Association between cost efficiency and profit efficiency of the banks

- The study finds a positive and strong correlation between cost efficiency and profit efficiency of the banks. The positive association between cost efficiency and profit efficiency implies that Ethiopian commercial banks that achieve higher levels of cost efficiency are at the same time profit efficient over the study period.
- Higher levels of inefficiency are found on the cost side than on the profit side. This requires management of banks to focus on controlling operating costs.

Ownership structure and bank efficiency

- The state owned commercial banks achieved relatively higher scores of overall technical efficiency (OTEF), pure technical efficiency (PTEF), scale efficiency (SEF) and profit efficiency (PEF) compared to the private banks. On the other hand, the private commercial banks achieved relatively higher scores of cost efficiency (CEF) and allocative efficiency (AEF) compared to the state owned commercial banks.
- The average overall technical efficiency of the state owned commercial banks over the study period is 84.58 percent, indicating that an average state owned commercial bank could have reduced its input by about 15 percent without making any change in its level of output. The corresponding figure for the private commercial banks is 73.39 percent, reflecting that an average private commercial bank could have reduced its input by about 27 percent while producing the same level of output. The K-W test reveals that the difference between the overall technical efficiency of the state owned commercial banks and the private commercial banks is statistically significant. This implies the state owned commercial banks are overall technically more efficient than the private commercial banks over the study period.
- The average pure technical efficiency of the state owned commercial banks over the study period is 86.74 percent, while the corresponding figure for the private commercial banks is 85 percent. This indicates that about 13 percent of the over technical inefficiency of the state owned commercial banks is due to managerial

inefficiency (pure technical efficiency), while managerial inefficiency accounts about 15 percent of the over technical inefficiency of the private commercial banks which slightly higher than that of the state owned commercial banks. Though the state owned commercial banks achieved relatively higher level of pure technical efficiency, the study lacks statistical evidence to conclude that the state owned commercial banks are better off in terms of economic resource utilization.

- The average scale efficiency of the state owned commercial banks over the study period is 97.08 percent; the corresponding figure for the private commercial banks is 87.07 percent. This implies that about 3 percent of the over technical inefficiency of the state owned commercial banks stems from inappropriate scale of bank operation; the equivalent figure for the private commercial banks is about 13 percent. The K-W test indicates that the difference between the scale efficiency of the state owned commercial banks and the private commercial banks is statistically significant. The result reveals that the state owned commercial banks have statistically lower levels of size related inefficiencies and thus are more scale efficient than the private commercial banks.
- The average PEF of the state owned commercial banks over the period 1999-00 to 2010-11 is found to be 78.60 percent, while the corresponding figure for the private commercial banks is 75.36 percent. The result shows that an average state owned commercial bank could have increased its profit by about 21 percent had it operated efficiently over the study period. By the same token, an average private commercial bank could have earned about 25 percent more profit than it actually

earned had it operated efficiently over the study period. Though the state owned commercial banks achieved higher level of profit efficiency than the private commercial banks, the K-W test reveals that the difference between the profit efficiency of the state owned commercial banks and the private commercial banks is not statistically significant. Thus, the study lacks statistical evidence to conclude that the state owned commercial banks are more profit efficient than the private the commercial banks.

- The average cost efficiency of the state owned commercial banks over the study period is 68.89 percent, while the corresponding figure for the private commercial banks is 72.35 percent. The result implies that an average state owned commercial bank could have incurred about 31 percent fewer costs than it actually incurred had it operated efficiently. Similarly, an average private commercial bank could have reduced its cost by 28 percent had it operated efficiently. Though the private commercial banks scored higher level of cost efficiency than the state owned commercial banks, the K-W test indicates that the difference between the cost efficiency of the private commercial banks and the state owned commercial banks is not statistically significant. Thus, the study lacks statistical evidence to conclude that the private commercial banks are more cost efficient than the state owned commercial banks.
- The average allocative efficiency of the private commercial banks over the study period is 83.83 percent, while the corresponding figure for the state owned commercial banks is 75.34 percent. This indicates that about 16 percent of the cost inefficiency of the private commercial banks is due to wrong combination of

inputs, while the corresponding figure for the state owned commercial banks is 25 percent. The study suggests that the private commercial banks are having better combination of inputs, input combination that minimizes costs, than the state owned commercial banks. However, the K-W test shows that the difference between the allocative efficiency of the private commercial banks and the private commercial banks is not statistically significant.

- The K-W test shows that the state owned commercial banks have not shown any statistically significant change in their overall technical efficiency, pure technical efficiency, scale efficiency, cost efficiency, allocative efficiency and profit efficiency over the study period.
- The K-W test shows that the private commercial banks have shown statistically significant change in their pure technical efficiency (managerial efficiency), profit efficiency, and allocative efficiency over the study period. However, the private commercial banks have not shown any significant change in their overall technical efficiency, scale efficiency, and cost efficiency between 1999-00 and 2010-11.

Trend of market structure of the banking sector

- On the deposit market, the share of the largest public commercial bank (1BCR-Deposits), CBE, steadily declined over the period 1999-00 to 2010-11. The share of the bank in the deposit market declined from 85.3 percent in 1999-00 to 60.88 percent in 2010-11.

- The market structure using the 3BCR-Deposits also indicates declining trend over the study period. The share of the three largest banks in the deposit market declined from 91.79 percent in 1999-00 to 75.09 percent in 2010-11.
- Though the largest bank, CBE, continued to dominate the banking sector, its share in the total assets of the banking sector (1BCR-Assets) decreased over the study period. The share of the bank in terms of total assets of the banking sector declined from 82.76 percent in 1999-00 to 62.57 percent in 2010-11.
- Declining trend in the structure of the banking sector has been observed in the 3BCR-Assets. The share of the largest three banks in the total assets of the banking sector decreased from 90.43 percent in 1999-00 to 76.44 percent in 2010-11.
- Similar to the results obtained using the K-bank concentration ratios, the values of HHI for all the major indicators of market structure of the banking sector decreased over the period of the study. The HHI-Deposits and HHI-Assets of the banking sector decreased from 73.16 percent in 1999-00 to 39.02 percent in 2010-11 and from 69.03 percent in 1999-00 to 40.80 percent in 2010-11 respectively.

Determinants of financial performance of the banks

The study revealed that diversification, operational efficiency, capital adequacy, bank size, loan intensity, market concentration and real GDP growth rate are significant key factors that influence banks' profitability in Ethiopia.

Market share, credit risk and annual inflation rate did not have any significant effect on the banks' profitability.

- Capital adequacy, which is used as a proxy for capital strength, is significantly and positively associated with bank profitability (ROAA). The result implies that the higher the equity to asset ratio the higher the earning a bank will enjoy.
- Another explanatory variable that is found to have significant impact on the financial performance of the banks is the ratio of non-interest income to total income. The ratio of non-interest income to total income measures a bank's level of diversification and is found to have a positive and statistically significant impact on the profitability of the banks.
- The other key determinant of bank profitability found by the study is Bank size. Bank size is proxied by log of total assets of a bank. Bank size is found to have statistically significant and positive impact on the profitability of the banks. The positive coefficient indicates that larger commercial banks tend to earn higher profits than smaller commercial banks. This is consistent with the relative market power hypothesis. The relative market power hypothesis states that only larger banks are able to exercise market power in pricing their products to earn above normal profits.
- The other variable that is considered by the study as explanatory variable is operational efficiency. The operational efficiency of the banks is proxied by the ratio of operating costs to total income. Operational efficiency is found to have statistically significant and negative impact on bank profitability. This indicates

that the banks have much to profit if they are able to exercise efficient cost management practices.

- The other calculated parameter is bank liquidity, which is measured by the ratio of loans to deposits. The variable is found to have a negative and significant relationship with profitability. The finding brings to light the trade-off between liquidity and profitability; the more resources that are tied up to meet future liquidity demands, the lower the bank's profitability.
- The ratio of net loans to total assets, a proxy for loan intensity, is also one of the variables that influence the financial performance of the banks. The variable is found to have a positive and statistically significant association with bank profitability.
- Of the external factors considered by the study, the study finds market concentration and real GDP growth rate to have a positive and significant impact on the profitability of the banks. The positive and significant association between market concentration and bank profitability provides evidence on the Structure-Conduct-Performance (SCP) hypothesis. The result of the study characterizes the nature of Ethiopian banking sector as an oligopoly type, a market dominated by few banks, each of which has control over the market where there is a high level of market concentration. The positive and significant association between real GDP growth rate and bank profitability indicates that economic growth can boost the profitability of banks by increasing the demand for financial services, thereby increasing the banks' cash flows, non-interest earnings and profits.

- The study finds that loan loss reserve to total loans (a proxy for credit risk), market share and inflation to have no statistically significant influence on the profitability of the banks.

Suggestions:

The findings of the study have significant policy substance. If Ethiopian commercial banks are to play the key intermediary roles in terms of augmenting the rapid and sustainable development endeavors of the country, promoting private investment, facilitating trade and commerce, and offering more new products and services to their clients at the right time and fair prices with better quality, they need to be efficient and profitable. In light of this, bank managers and policy makers are required to take measures and frame policies aimed at enhancing the efficiency and profitability of the country's banking sector.

In a bid to enhance the efficiency and profitability of the banks, the role of technology advancement is particularly important given that a bank with relatively more advanced technologies may have an added advantage over its competitors. Furthermore, liberalizing the banking sector more will increase competition among the banks. In view of increased competition, managers of banks, bank regulators and policymakers will be more conscious to look for better ways to obtain the optimal use of their resources. To ensure the competitiveness of the banking sector, bank managers should have the ability to sustain stable and competitive returns. Thus, from a regulatory perspective, the performance of the banking sector should be based on its efficiency and profitability. The policy direction has to be directed towards enhancing the efficiency of the banks with the

aim of intensifying the robustness and stability of the banking sector. More specifically, the study extends the following suggestions:

- Bank managers need to exert their utmost efforts to improve their input utilization as well as adjust their scale of operation. Particularly, the state owned commercial banks and private commercial banks can have efficiency gains through better use of resources. To this end, upgrading the skills of bank employees and enhancing their capacity through the provision of short-term and long-term trainings geared towards better utilization of resources are warranted.
- Managers of commercial banks particularly that of the private banks could reap more efficiency gains if they increase their scale of operation, and enhance their equipment, staffing and branch locations.
- Bank managers of both state owned banks and private banks should employ optimum combination of inputs taking into account the price of the respective inputs apart from minimizing the quantity of the inputs.
- Since higher levels of inefficiency are found on the cost side than on the profit side, managers of the commercial banks need to focus much on controlling operating costs.
- Managers should frame policies aimed at enhancing the profitability of the banks through improving the banks' capital structure (strengthening the bank's capital base), implementing risk management practices, devising mechanisms to better control bank operational costs, diversifying banks' sources of income and utilizing bank assets more productively and managing the liquidity position.

- On the external factors, market concentration and real DGP growth are found to significantly and positively influence the financial performance of the commercial banks. The positive and significant association between concentration and profitability evidences the prevalence of collusion among the banks, making some banks to earn monopoly profits by charging higher rates on loans and paying lower interest rates on deposits. This may imply that the banking sector in Ethiopia is not competitive enough. Thus, policy makers and bank regulators should give attention to formulating policies aimed at making the banking sector more competitive through liberalizing the sector further.

Future research:

This study could be extended in many ways. In terms of methodology, parametric techniques such as SFA could be used. Another possible extension could be the examination of the productivity of the banks using the DEA Malmquist model. Future research could look into the efficiency of banks in East Africa, the region which Ethiopia belongs to, and examine how efficient Ethiopian banks are compared to those that operate in other East African countries. Future research could also include more variables such as taxation and regulation indicators, exchange rates, and indicators of quality of bank services in examining the factors that affect the performance of the banks. Another possible extension could be the examination of differences in the determinants of profitability between small and large or high and low profitability banks.