

MEASURING EFFICIENCY OF BRANCHES OF MANAPPURAM CHITS

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Abstract

The objective of this paper is to measure technical efficiency of branches of Manappuram chits in Kerala and identify the sources of inefficiencies. The efficiency of each sample branch is measured by using the Data Envelopment Analysis (DEA). The study uses the employees and computers as inputs and sala and subscribers as outputs. The study provides useful insights to management by unravelling the sources of inefficiency in the branches of Manappuram Chit.

Keywords: Data envelopment analysis, Technical efficiency, Most productive scale size.

1. Introduction

The Indian financial sector has witnessed the emergence of wide range of financial institutions over the year that caters to the economy's diverse financial needs. The Non Banking Financial institutions (NBFIs) play a very important role among the financial institutions. A Nonbanking financial institution facilitates bank related financial services such as investment, contractual savings and market brokering. The NBFIs along with the banking sector contribute to the inclusive growth and development of the economy by increasing the access to financial services, enhancing competition and diversifying financial sector among others.

Established in the year 2000 and registered under the Chits Fund Act 1982, Manappuram Chits is part of the well-known Manappuram group. Manappuram group is Manappuram Finance Ltd., a non-banking finance company engaged predominantly in gold loans and ranked among the top 15 NBFCs in India. Manappuram Chits is a professionally managed company with a strong management team and a proven track record in the financial services sector. Over the last 16 years, Manappuram Chits has emerged as one of the leading chit promoters in South India. Manappuram Chits has devised customer friendly Chit Fund Schemes that cater to the credit needs of the people at lower interest rates. Manappuram Chits conform to all RBI guidelines and its fully computerized operations are transparent with the Foreman's commission limited to 5 percentage.

The firm has succeeded in earning the trust of the customers with a unique service-oriented approach. Today, it has acquired a well deserved reputation as one of the leading chit promoters in Kerala, Tamil Nadu and Karnataka. The efficiency of Manappuram chits depends on the operation of a network of branches that act as the key contact point between Manappuram chits and its customers. Efficiency measurement at branch level poses big challenges to Manappuram chits because it is difficult to define and measure inputs and outputs of the branches. It is in this context the present study makes an attempt to measure the efficiency of branches of Manappuram chits using data envelopment analysis (DEA).

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2. Review of literature

The literature on the efficiency of bank branches in the country has grown rapidly in the recent years. But the researches in branch efficiency of nonbanking finance companies are scanty. This section discusses the different strands of literature on the efficiency based on DEA model.

Howland and Rowse (2006) employed DEA to assess the efficiency of branches of a major Canadian Bank (Canbank). First a DEA model of American bank branch efficiency is utilised to build a model with Canbank data, then the model outcomes are compared to the outcomes of the US study and differences explained.

Pradeep Kaur and Gian Kumar (2010) have studied the cost efficiency of Indian commercial banks by using DEA technique over the period 1991-2008. The findings of their study revealed that average cost efficiency of public sector banks is 73.4% and for private sector banks it is 76.3%. The results of their study indicate that to some extent merger program has been successful in Indian banking sector.

Muhammed Aftab et al. (2011) investigated the relationship between the bank efficiency and share performance in Pakistan employing DEA. The results of their study showed that a positive and significant

relationship exists between bank efficiency and share performance.

Feroze and Sumisha (2014) measured the efficiency of State Co-operative Banks (SCBs) in India for the year 2010-11 using DEA. The results of their study revealed that state co-operative banks operate at 83 per cent efficiency in Model 1 and at 86 per cent in Model 2. They observed that SCBs have improved their efficiency when Non-Performing Assets are taken as additional input in Model 2.

3. Measurement of Efficiency: Data Envelopment Analysis approach

Data Envelopment Analysis is a linear programming based technique for measuring the performance efficiency of organisational units which are termed as Decision Making Units (DMUs). This technique aims to measure how efficiently a DMU uses the resources available to generate a set of outputs (Charnes et al.1978).

The efficiency measure proposed by Farrell in 1957 did not receive much attention until Charnes, Cooper and Rhodes formulated a mathematical programming approach to frontier estimation in 1978. They coined the term DEA for the first time. The DEA model developed by Charnes, Cooper, and Rhodes had an input orientation and assumed constant return to scale (CRS). The CRS model offers best solutions only when all firms are operating at optimum scale. Subsequent studies by Banker, Charnes and Cooper have considered alternative sets of assumption and introduced a variable return to scale (VRS) model. The VRS model measures technical efficiency devoid of scale efficiency (SE) effects.

CRS model generates technical efficiency scores under the assumption of constant returns to scale. CRS efficiency score is a measure of TE. VRS model provides efficiency score which is a measure of PTE devoid of SE. SE measures the divergences of DMUs from the Most Productive Scale Size (MPSS). MPSS indicates the size of operation where output is maximized per unit of input. SE is obtained by dividing CRS score by VRS score ($SE = TE \text{ score} / PTE \text{ score}$).

The performance of DMUs is assessed in DEA using the concept of efficiency which is the ratio of total outputs to total inputs. Efficiencies estimated using DEA are relative i.e., relative to the best performing DMU. The best performing DMU is assigned an efficiency score of unity or 100 percent and performance of other DMUs vary, between 0 and 100 percent relative to this performance.

There are two directions for DEA models - either an input orientation or an output orientation. An input orientation aims at reducing input amounts as much as possible while keeping at least the present outputs levels, while an output orientation aims at maximizing output levels without increasing the use of inputs (Cooper et al. 2000).

4. Methodology

The present study is designed as exploratory one based on primary data collected from the sample branches of Manappuram Chits. This study makes an attempt to measure TE scores in the conduct of chitty business using both CRS and VRS models of DEA with an output orientation. The study uses DEA based on production approach. The production approach views branches as producers of services, using resources such as labour, equipment and total operating expenses to service accounts and develop products such as chitty, loans, and other financial services. The study uses number of employees and computers as inputs and sala and number of subscribers as outputs in DEA-SOLVER Software developed by Cooper, Seiford and Tone. Manappuram chits has 16 branches spread across three states of south India. For the purpose of the present study branches in Kerala has been selected.

Table 1(see appendix) shows the results obtained under both CRS and VRS assumptions. Efficiency obtained from CRS model of DEA is known as technical efficiency (TE) and efficiency obtained from VRS model of DEA is known as pure technical efficiency (PTE). In DEA literature DMUs with TE score equal to 1 are called 'globally efficient' and DMUs with PTE score equal to 1 are called 'locally efficient' and DMUs with efficiency score equal to 1 under both CRS and VRS assumptions are called 'most productive scale size' DMUs.

The mean efficiency score of the sample branches is 0.733 under CRS assumption and 0.823 under VRS assumption. These results imply that inefficient branches can become fully efficient by augmenting outputs, on an average, by 27% without reducing the current level of inputs. It appears from the Table 1 that 5 branches (Valappad, Vatanappally, Chalakkudy, Calicut and Palarivattom) have obtained 100 percent PTE score and attained the status of 'locally efficient' branches. Of these 5 locally efficient branches, Valappad and Calicut branches have secured 100 percent TE score and become 'globally efficient branches of the sample branches.

Valappad and Calicut branches form efficiency frontier and appear in the reference set for inefficient branches. Valappad branch appears 6 times and Calicut branch 3 times in the reference set for inefficient branches. They are called peer with exemplary practices which may be emulated by inefficient branches to attain the status of fully efficient branches. A branch appearing in the reference set for inefficient branches most time is known as 'Global leader'. valappad branch appears 6 times in the reference set and is elevated to the status of 'global leader' of efficiency among the sample branches.

As the TE score of Vattiyoorkkav (0.64) and Palarivattom (0.61) falls below 0.65, they may be considered as the inefficient branches of the sample branches. These branches demand immediate attention of the management.

5.1 Sources of inefficiency in Manappuram chits

This section explores the sources of inefficiency in the branches of Manappuram Chits . It is observed from Table 1 that 5 branches (Valappad, Vatanappally, Chalakkudy, Calicut and Palarivattom) have obtained 100 percent PTE and attained 100 percent managerial efficiency. However, of these only 2 branches, Valappad and Calicut, have secured TE score equal to 1. These branches lie on the efficiency frontier under both CRS and VRS assumptions and operate at most productive scale size (MPSS).

Vatanappally, Chalakkudy , and Palarivattom are 100 percent efficient branches under VRS assumption. Their source of inefficiency is not caused by managerial inefficiency but by inappropriate scale size. This would mean that these 3 branches have best practices in the utilisation of inputs but they failed to operate at MPSS. Analysing the TIE, PTIE and SIE, it may be concluded that nearly 6% technical inefficiency is caused by managerial under-performance and nearly 13% by divergence from MPSS (scale inefficiency).

5.2 Required improvements in efficiency

As per the analysis Palarivattom is the most inefficient branch which should increase the sala and subscribers and decrease use of computers to attain 100% efficiency. Vatanappally branch which is locally efficient should augment the sala and subscribers and reduce the deployment of employees to become globally efficient branch.

6. Conclusion

This paper measures the technical efficiency of a sample of 9 Manappuram chits from Kerala for the year 2016-2017 using DEA. The study uses the number of employees and computers as inputs and sala and subscribers as outputs. Mean efficiency score of sample branches is 0.733 under CRS assumption and 0.823 under VRS assumption. Two branches operate at MPSS and produce maximum output per unit of input. The decomposition of technical efficiency into pure technical efficiency and scale efficiency reveals that the technical inefficiency is mainly due to scale inefficiency. The study provides useful insights to management by identifying branches with excellent business practices and by unraveling the sources of inefficiency in the branches of Manappuram Chits .

Appendix
Table 1

Efficiency Scores of Sample Manappuram chits for the year 2014-2015

No.	Branches	TE	TIE	PTE	PTIE	SE	SIE
1	VALAPAD	1.0000	0.0000	1.0000	0.0000	1	0.0000
2	VATANAPALLY	0.9420	0.0640	1	0.0000	0.953	0.047
3	VATTIYOORKKAVU	0.6427	0.3573	0.7048	0.2952	0.821	0.179
5	CHALAKKUDY	0.8410	0.129	1	0.0000	0.841	0.159
6	PALAKKAD	0.7302	0.1698	0.8024	0.1976	0.912	0.088
7	CALICUT	1.0000	0.0000	1	0.0000	1	0.0000
8	PALARIVATTOM	0.6165	0.3835	1	0.0000	0.5623	0.4377
9	TIRUR	0.6943	0.2957	0.902	0.098	0.7432	0.2568
	AVERAGE	0.733411	0.155478	0.823244	0.065644	0.759167	0.129722

Source: Data Analyisi

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