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Research Article

PERFORMANCE EVALUATION OF GUILAN REFAH BANK BRANCHES USING DATA ENVELOPMENT ANALYSIS DEA (WINDOW MODEL)

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ABSTRACT
The main factors determination of the performance is evaluation of the performance of the economy. Determine the performance assessment organizations in the future are essential for making strategic decisions. In this regard, it should be used to calculate the efficiency and productivity of organizations, so that in future decision making process of economic growth is planned. Banks are one of the most important economic units that can be extended by the bank favorable conditions for growth and development in various sectors of the economy provide a country. Just as the safe and efficient banks can contribute to economic growth, poor performance and poor they cannot create crisis. Banking systems in the economy is also an important role to play. Hence, in this study, the performance of each of the branches of Bank Refah province using data envelopment analysis (DEA) model is a window period of three years (2011-2013) were evaluated. On the other hand, the branches were able to work more efficiently and increase their lending. Therefore inefficient branches will be able to reasonably reduce costs and increase his volume of lending and move towards greater efficiency.

Keywords: *Bank Refah, Efficiency, Data Envelopment Analysis (DEA), Model Window*

INTRODUCTION
Today banks around the world with extensive banking operations can be favorable conditions for economic growth and development in various sectors provide. Due to lack of sufficient development of capital markets in the economy, the banking system is of particular importance in the financial markets. Because in practice banks are responsible for long-term financing, direct investment and other banking services provided. The main functions of banks to provide liquidity for investment in various natural and legal persons and their consumer purchases. Also in connection with the liberalization of financial markets and global markets, the performance is a necessary condition. Therefore, to the extent that banks are safe, efficient and can contribute to economic growth, poor performance and poor economic crises they can cause. Measuring the efficiency and productivity of the most basic steps to improve efficiency and productivity. So far too many internal and external studies was undertaken to evaluate the performance of banks. In this study, the efficiency of bank branches Refah, Guilan techniques using data envelopment analysis (DEA) during the last three years 2013 to 2011 were analyzed. The banks that are combined with certain inputs to the outputs have been better, efficient and inefficient banks to investigate the origin of their inefficiency have been determined.

MATERIALS AND METHODS
Research Methodology
In this study, the efficiency of bank branches Refah, Guilan province during the last three years 2011-2013 are considered. Statistical information needed to complete the main sources of statistics and Budget Organization and other relevant agencies, staff and balance sheet of the Bank is collecting Refah province.
Data Envelopment Analysis DEA (Window Model)
Window to allow combined analysis of time series and cross-sectional views partly resolves the problem of insufficient observations in the evaluations. This technique is based on the moving average acting and

for a single performance trends over time is useful. With each unit in a different era, as an independent unit behavior. In this case, the performance of a single unit within a certain period before their performance in other courses, in addition to the other units evaluated. This situation increases the number of courses studied in the analysis that is useful in the study of small sample size.
Change the width of the window, i.e. the number of time periods, indicating providing simultaneous spectral analysis, which includes the analysis of cross-sectional views of a period that includes the observation of all the periods studied (Tulkens and Eeckaut, 1995).

An analysis of the actual window with a window width somewhere between a horizontal and all courses of study (evaluation unit over time), can be viewed as a special case of a sequential analysis. However, the analysis assumes that the last row is practical, feasible and therefore will include all previous observations.

But the problem of the analysis windows that only take into consideration the observations within a certain number of time periods (A window) and by the number of observations in each analysis remains constant, it is not true.

Defined by the window, the window's observations on the behavior and therefore when viewed as a cross-sectional analysis, the time is analyzed.

Since all units in one window to another measure, this approach implicitly assumes that any change in any of the windows, there is no technique. This problem is reduced by reducing the width of the window and for authenticating the analysis window, the window must be chosen to ignore the reasonable technical changes.

In this study, the process of analyzing the data, the first three years of bank branches Refah, Guilan Province between 2011-2013 and collected the raw data for the analysis were recorded with the help of computers and software.

Then the data through the application of DEA Solver was analyzed through the window.

RESLTS AND DISCUSSION

In the present study assessed total duration of 3 years (2011-2013). Analysis window for a period of one year, two years, three years is done. During the evaluation period is called the window (Figure 1). As can be seen in all branches of the bank with one another and with their one-year period were evaluated and their effectiveness has been demonstrated in several years. For example, the efficiency of the central branch of Rasht in every 3 years is equal to one in every three years, is a high performance headquarters declined Bandar Anzali in three years. So in this way can be interpreted performance over the other branches.

According to the results of the 42 branches of 10 branches in 2011 (Central City, grass field, Rasht, Some'esara, market Tehran, physicians Rasht Rasht bed, Masal, Prophet Rasht Rasht Lacan, Golsar City), in 2012 only 4 of 42 branch offices (central Rasht Rasht doctors, Imam LAHIJAN, Lacan City) and in 2013 the 5 branches of 42 branches (Central City, bed Rasht Rasht Motahari, Imam lahijan, social security Roodsar) could center of their performance. The following graph shows changes in performance over time. From this chart, you can easily change the performance of subsidiaries during the period realized.

Performance Evaluation (during the Two-year Window)

As can be seen in the following table together with each other and with all branches of the banks themselves have been evaluated over the course of two years and their effectiveness in different years is calculated. As can be seen in the windows (Figure 2) during the 2011-2013 bienniums, two branches (Central City and Masal) and the two-year window of only 90-91 branches (Imam Lahijan) branches have been effective.

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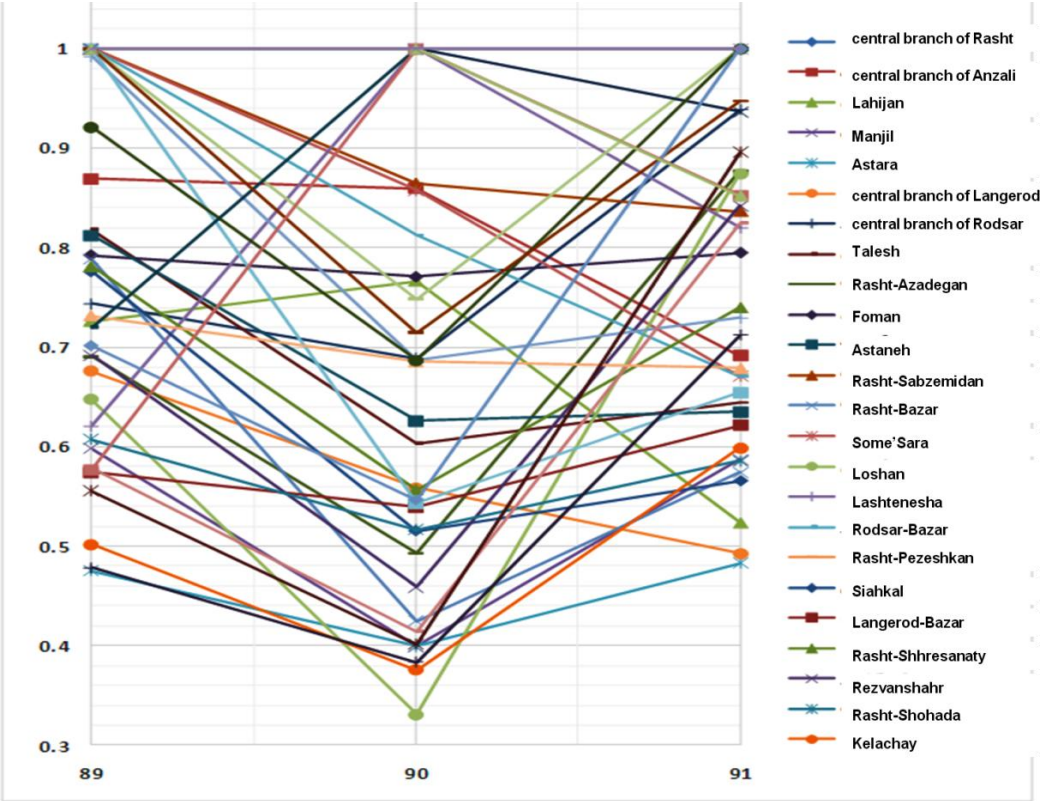

Figure 1: Changes in the performance of branches per year

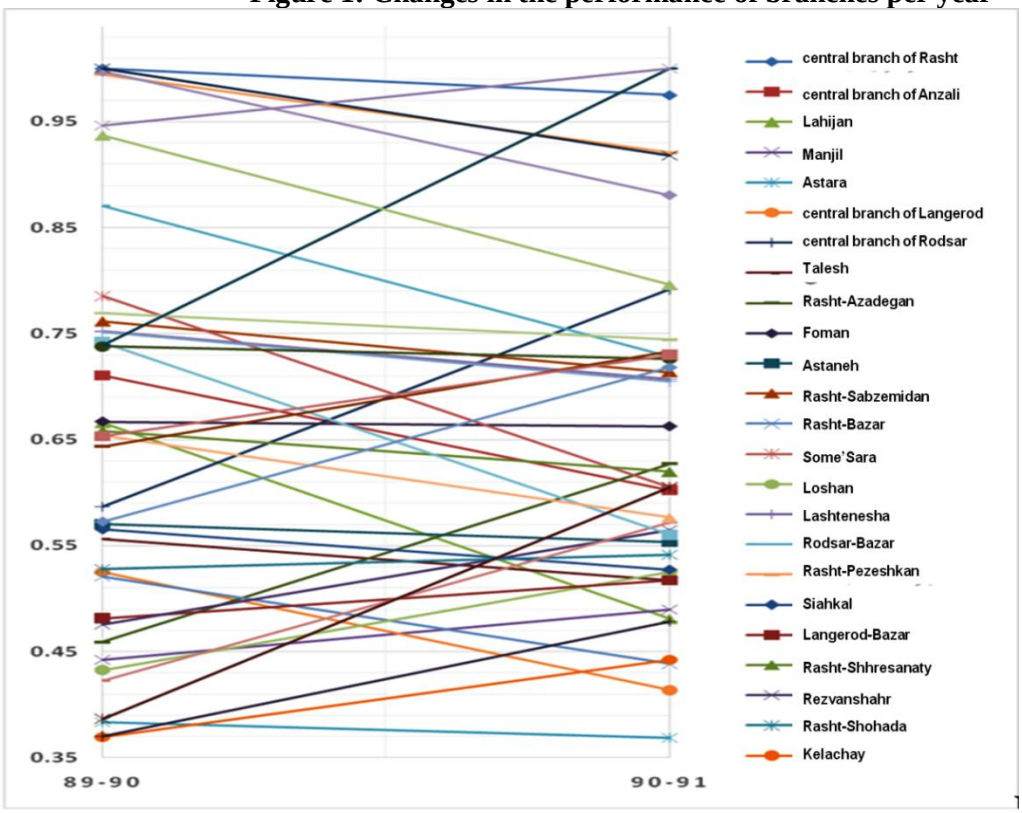

Figure 2: Performance of average line in the two-year period (row)

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Efficiency of bank branches in the table, in each year according to the length of the window, several functions have been calculated. For example by taking over a 2 year window, the performance for 2012 and for 2011 and 2013 are the beginning and end of window performance is calculated each year. Therefore, we can calculate the average efficiency per year. So every year, an average efficiency calculated for each branch is summarized in Figure 3 is ready. As you can see, there are three branches in 2011, a branch office in 2012 and five in 2013 were introduced as functional units.

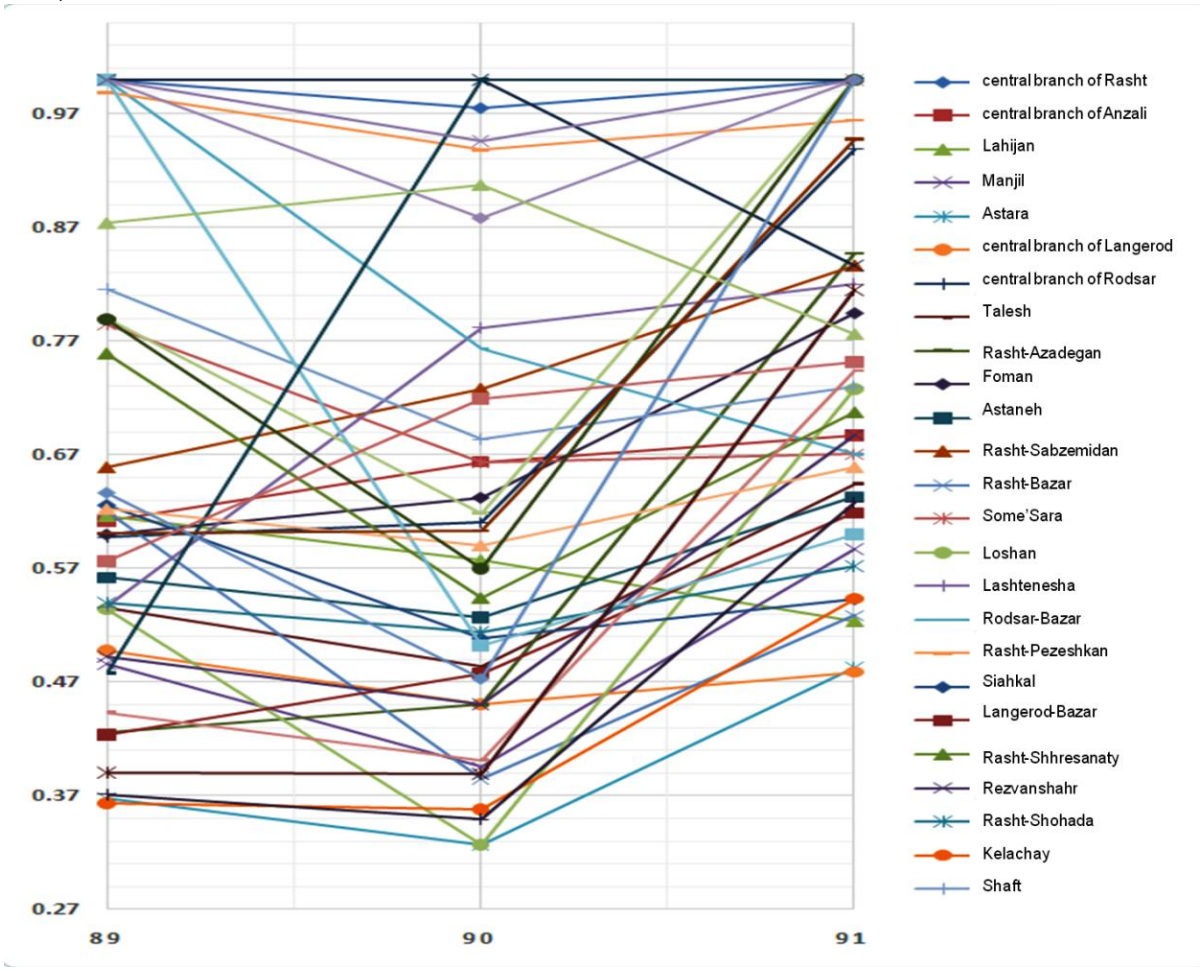

Figure 3: Average performance per year (column)

Performance Evaluation (during the Three-year Window)

In this case every three years up window. Due to the length of the window is equal to the length of the evaluation, so that only one window is created for each branch. Efficiency results in Figure 4. As performance per year in per branch is displayed.

The purpose of the research, production and results in the estuary is important for stakeholders. The most important part of any investigation appropriate and efficient solutions and recommendations by the investigator according to the results of the sample survey. Given that the present study was to assess the efficiency of bank branches in the province being considered. In this section we discuss the results obtained, the researcher provided suggestions to improve the conditions for managers to adopt the suggestions direction. Finally, the expression of the limitations of the study was to provide

recommendations for future research.

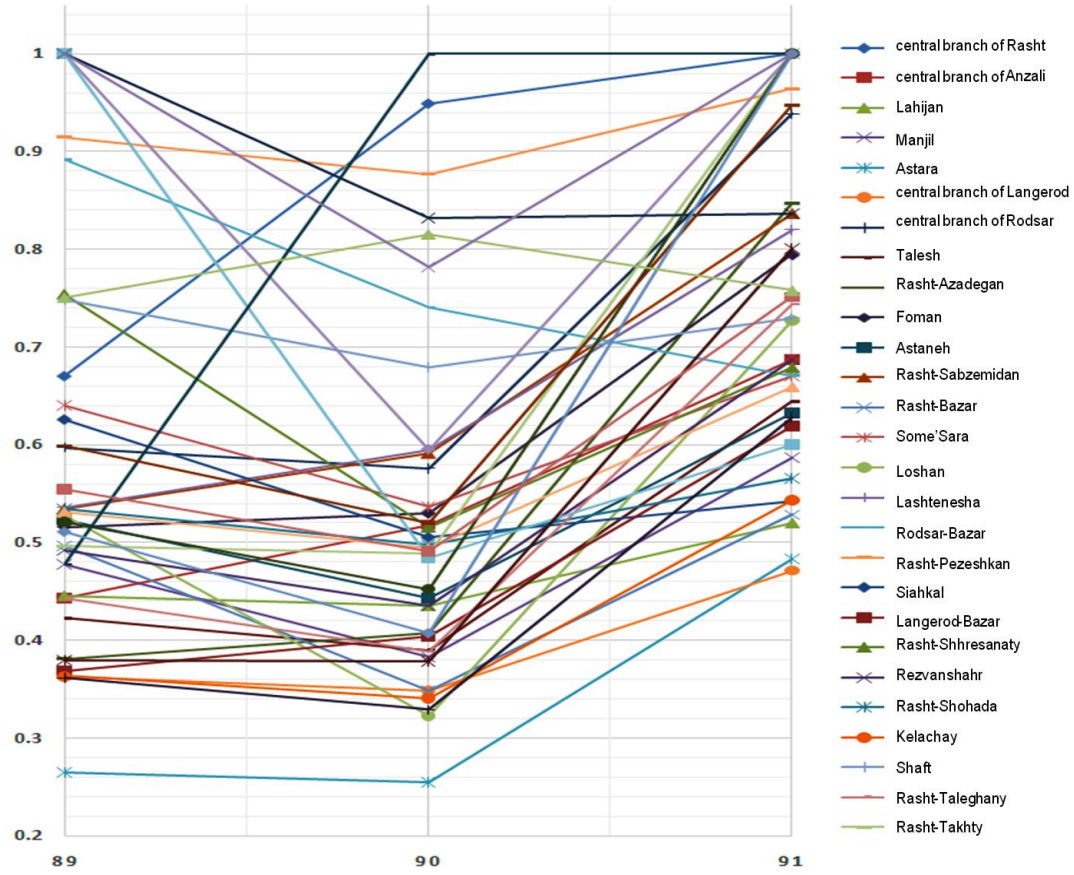

Figure 4: Average performance per year (column)

Answer to Research Questions

The performance of each branch in the window indicates that the window of a year, the average performance in 2011 to 79 in 2012 to 68 in 2013 to 78 percent. During the 2011-2013 two-year window given that for 2011 and 2013 and average for the year 2012 the average was calculated.

Average performance for each of the branches recalculated the average performance during the two-year window, according to the average performance for each of the branches, for 2011 to 65 in 2012 to 60 in 2013 to 75 per cent. During the three branches of the window, the average performance for the year 2011 to 58 in 2012 to 53 in 2013 to 75 per cent. DEA efficient and inefficient units under study are divided into two groups. Units that have a performance rating to a (100) units that are more efficient and less of a performance rating (100%) are considered to be inefficient. To answer the question in any of the investigated methods were introduced efficient branches of the other branches as well as subsidiaries are considered inefficient. In the one-year window during a window of 42 branches of 10 branches in 2011, 4 branches in 2012, and 5 branches in 2013 were able to achieve the performance.

Also according to the average calculated for the years 2013-2011 through the windows, Central Branch, Rasht and Tehran Imam Khomeini Masal and for two years 2013-2011 only been effective.

During the three-year window in 2011, based on an average calculated for the three-year performance over a three-year window did not work any of the branches of the border. But the highest frequency and the lowest were found in Golsar Rasht branch and to Astara branch respectively. Find the source of inefficiency inefficient actual values for each of the branches and each branch with optimum efficiency realized it was compared. But in other cases, the percentage change in real cases to achieve the optimal

value is calculated. Given that the actual values of less than optimal amounts of inefficient units and the percentage of positive change. The source of the inefficiency of the branches or the lack of output was low, so they will have to increase the efficiency of the output variables.

Data envelopment analysis of the advantages is that it can be easily using many variables to be considered in the decision. In fact, this technique has received many variables and data processing and conversion efficiency is rated on a variable name. The study results can provide solutions to increase the efficiency of inefficient branches. One of the branches of these solutions is that, although it has been successful in attracting deposits and deposits them in 2012 and 2013 compared to 2011 has increased, but its performance is not improved. Remained low due to the facility and the deposit balance with respect to the input variables are the staffing, administrative costs and personnel costs. The branches with more lending can increase their efficiency. Inefficiency of some branches of other factors, such as high costs and high employee. A reasonable reduction of the two factors mentioned branches also will move toward greater efficiency. Branches should also inspired by the branches of efficient and inefficient use of resources, in order to increase its output in order to increase the efficiency of steps. Moreover, it is also important to improve the effectiveness and efficiency of the units of time and schedule, so it is proposed that this comprehensive and long-term program according to the needs, goals, capabilities, limitations and conditions of the relevant branch of activity produced and developed and implemented.

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