COMPARING EFFECTIVENESS IN IRANIAN STATE-OWNED AND PRIVATE BANKS WITH SFA IN 2000 - 2014

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ABSTRACT

Bank system Effectiveness In each region, is a First step toward development. most of them are governmental So Iranian banks do not have desirable Effectiveness, So In this paper we compare Effectiveness in state-owned and private banks, we have used stochastic frontier analysis (SFA). We examine the Effectiveness of a sample of Iranian banks over the 2000 to 2014 time period in 10 state-owned banks and 4 private banks after Unit root tests in panel data. In this case, the goals are the bank profit and the inputs are the value of deposits and facilities and Physical capital. Conclusion with using this Method Shows that the Effectiveness in state-owned banks is more than private banks And 3 banks with the Least Effectiveness, private banks are.

KEYWORDS: Bank, Effectiveness, Panel Data, Private, State-Owned

INTRODUCTION

In recent years, many studies have looked at the relative performance of state-owned ly and privately owned enterprises. Several authors have suggested that privately owned enterprises might outperform state- owned ones, both because political incentives may distort the behavior of state-owned managers and because corporate governance problems might be more severe for state- owned firms. Empirical work has confirmed the theoretical predictions, indicating that privatized firms are often more efficient than comparable state-owned enterprises and that many enterprises have become more efficient. Now, the effectiveness of which types of comparable (private and state-owned) more? In this issue, a study has not been done.

In the last seven years, Iran government-owned banks have undergone a remarkable privatization program that, distinct from the experience. To address this research we employ an econometric methodology that builds on the literature on the performance effects of various types of bank ownership in developing Iranian banks from 2000 to 2014.

Privatization in Iran, in accordance with the general policies of Article 44 of the banks were operating under this policy must some 80 percent of state-owned banks, privatized. Money market like other markets to be effective. So far, study on the Effectiveness of banks was not done. While the topic of panel data to measure the Effectiveness of banks such as pooling or panel data was used.

Effective Compare

There are three main reasons why state-owned enterprises might effectiveness less well than private, and

privatized enterprises:

The first problem is that politicians and bureaucrats can use state-owned enterprises to further their political or personal goals. Although politicians can also encourage private firms to subsidize their constituents, private owners might be better motivated and more able to oppose such interventions than state-owned bureaucrats. For example, the profit-oriented owner of a private bank, especially if foreign, might be more motivated to protect the bank s prudential lending policies or costs minimization rules from government intervention than a state-owned manager would be.

Due to weak corporate governance in state-owned companies, their performance is worse than private companies.

State-owned enterprises have many objectives and many principals who have no clear responsibility for monitoring. Large private corporations also have many small shareholders, information asymmetries between owners and managers, and problems defining goals and holding management accountable. Yet even private firms with highly diffuse ownership will be better governed than state-owned enterprises according to these studies.

Lack of competition in activity led to the poor performance of state-owned companies to private companies on effectiveness. Monopoly leads to lack of public companies according to their performance can be

Panel Data

In other researches on the type of data used in the stochastic frontier analysis methods and Unit root tests have been neglected, that this leads to be skew and biased estimates. In this study, the objection is resolved. To determine the type of data used in the model is a combination of different tests. The most common, Limer test, using the fixed effects model is the model for panel data. Hausman test for fixed effects model using the random effects model. Table 1: The diagnostic tests for panel data

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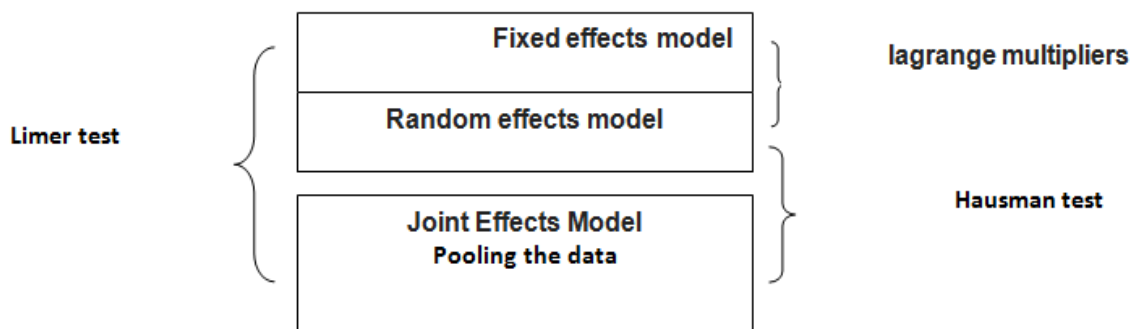
Sample

Our sample data were taken from the annual balance sheets and income statements of 14 state-owned and private Iran banks from 2006 to 2014. Ten of the 14 banks in our sample are Ten State-owned banks and data from four private banks. In estimating the degree of effectiveness in the banking industry, in any economic entity like bank, the nature of output and input is defined by our expectation and description of the entity.

Unit Root Tests in Panel Data and Determine the Type of Data

The results of the reliability of their data, based on the method described by Levin and Lin as follows:

Table 2: Unit Root Test

Variabl	Level of Reliability	Test Statistic	P -Value	Result
The amount of facilities	I(0)	-8.563	0.000	Unit root in Level
The number of branches	I(0)	-4.382	0.000	Unit root in Level
The amount of deposits	I(0)	-12.314	0.000	Unit root in Level
profit	I(0)	-5.851	0.000	Unit root in Level

Source: research findings

The Results of Tests of Fixed Effects (F Limr Test)

First, the panel model with fixed effects estimates and then test of fixed effects do not waste .The results indicate that the null hypothesis can be rejected based on the waste of individual effects panel data model to be estimated.

Table 3: F limr Test

Effect Test	F	Df	Prob
Cross-section F	7.489552	(31,108)	0.0000

Source: research findings

Hausman Test

Estimate a panel data model can be fixed effects or random effects. Hausman test is done to detect it. According to the results test, the model must be estimated with random effects.

Table 4: Hausman Test

Effect Test	Chi-sq.statistic	Chi-sq.d.f	Prob
Cross-section Random	1.237	4	0.2324

Source: research findings

The results of tests of fixed effects (F limr test) and Hausman test indicates that the data panel and must be estimated with random effects.

The Estimation of Bank Effectiveness Model

Bank effectiveness is the result of dividing the entity's effective output by its potential output in terms of its input value. This potential output is the standard amount of facilities in each bank which is estimated through frontier random function. For this reason, the data, for a period of four years, on 4 Private Banks and 10 state-owned banks. Cobb Douglas production function was estimated by the maximum Likelihood method. To estimate the parameters in frontier 4.1 version was used. The software application has a 3-step procedure for the estimation of the parameters in frontier random function as following:

- The estimation of the parameters for frontier random production functions by means of a minimum normal squares method where all parameters except the ordinate distance β_1 are not estimated obliquely.

- The pursuit of a 2-step point for $\gamma = \dfrac{\sigma^2_u}{\sigma^2} = \dfrac{\sigma^2_u}{\sigma^2_u + \sigma^2_v}$

The initial approximation is done with a 2-digit decimal. To achieve the final estimations in the maximum likelihood, the value s chosen to find a point as the initial approximation in a repeatable process are used,

- Except the ordinate distance, the parameter β is put in the values for the minimum normal squares and the parameters β and σ are corrected and modified based on the minimum normal Squares method. Table 1 shows the estimation of the minimum normal squares for the parameters in the frontier random function with respect to the function form of cob Douglas model as follows:

$$\ln Y = -4.02 + 0.47 \ln X_1 + 0.60 \ln X_2 + 0.95 \ln X_3 + V - U$$ The output: the monetary value of the bank facilities.

The input: the number employers working for the bank, the amount of deposit and the number of branches

In output variance $\sigma^2 = \sigma_u^2 + \sigma_v^2$, is the in effectiveness variance component as shown in table 2. There force

$$\gamma = \frac{\sigma^2_u}{\sigma^2} = \frac{\sigma^2_u}{\sigma^2_u + \sigma^2_v} = 0.91$$ where the error probability is less than 0.1. Changes were largely caused by the effects

of over. The bank facilities were partially effects of the in effectiveness u and the unintentional error part which the enterprise has no control over. The bank facilities were partially affected by the production function vector V. the variable included in the production function have considerably controlled the driving factors and minimized the unintentional errors.

Using GLRTS test, the significance test was performed. The general form of the test is given below:

$$LR = -2\{Ln[L(H_0)/L(H_1)]\} = -2\{Ln[L(H_0)] - Ln[L(H_1)]\} \tag{1}$$

Where the value of likelihood is function in the null hypothesis (H_0) and $L(H_1)$ is the values of likelihood function in the opposite hypothesis (H_1). It is assumed that LR has an asymptotic distribution (χ^2) with the free down degree K:

$$LR \sim \chi^2(K) \tag{2}$$

The hypothesis (H_0) indicates the Nunez of variables $X_1 - X_3$.

$$H_0 = \beta_1 = \beta_2 = \beta_3 = 0$$

In this case, there are three limitations including the critical value at the significance level 0.05 and the free down degree 3 ($(\chi^2) = 7.81$). This statistic shows the significant model estimated parameters.

The $sigma - squared(\sigma^2_\varepsilon)$ statistic is the total variance of the random component of variance in effectiveness and statistically significant at the 1% is achieved. The gamma statistic 0.91 at the 5% significance level is obtained. This statistic represents the proportion of variance in the total variance ineffectiveness is close to 1 is obtained. Thus, a high proportion of the total variance is the variance of in effectiveness and random variance component contributed very little to the total variance.

The results of the estimation of the amount of facilities function parameter via stochastic frontier method are briefly illustrated in table5. Considering the critical value at 95% confidence level (t = 1.96), the effect of all independent variables on the dependent variable is significant.

Table 5: The Result the Estimation of the Amount of Facilities Function Parameters via Stochastic Frontier Method

Variable	Parameter	Coefficient	Standard Deviation	Statistic t
Fixed	β_0	5.2	2.01	2.58
The number of branches(X_1)	β_1	0.39	0.18	2.389
The amount of facilities(X_2)	β_2	0.29	0.12	2.750
The amount of deposits(X_3)	β_3	0.68	0.33	2.394

Source: research findings

As illustrated table 6, the model is significant and the estimate parameters are reliable.

Table 6: Variable Parameters

Variable	Estimate Coefficient	Standard Deviation
$Sigma-squared(\sigma^2)$	**7.18**	**4.80**
$gama(\gamma)$	**0.90**	**0.12**
$LR\,test$	**81.67**	------

Source: Research findings

Analysis The Results From Model Estimation

The stochastic frontier approach was used to calculate a measure of production effectiveness for bank in our sample. This approach uses a parametric technique to estimate the characteristics of best-practice banks from bank facilities functions. The parameter β1 suggests that the number of the branch influences directly the bank facilities as proved by the model estimation (β 1 =0.39). Considering the statistical significance, Given that the whole range of the factors contributing to the bank facilities initiatives remain in variable; a one – percent increase in the area brings about an average 0.39 % increase in the facilities.

The parameter β2 is indicative of the effect the Labor number in the bank has on its facilities. Based on the estimation model And Considering the statistical significance, given the fixed range of the fixed range of the parameters impacting on the facilities, the above effect will be direct; given the invariability of all the driving forces for the bank facilities, a 1% increase in the facilities will increase, on the average, the bank facilities up to 0.29 %.

The parameter β3 is the impact of bank deposit size a bank facilities which is, according to the estimation model, divert β 3 =0.68, Considering the statistical significance, Given the invariability of the main factors driving the banks facilities will be increased by 0.68 percent through a one- percent increase in the size of bank facilities.

In this model, the highest and lowest effect on the facilities is made by deposit size and the number of branches, respectively. Following the estimation model, the effectiveness is measured for each individual bank based on the estimated frontier function and the standard facilities amounts defined, table 6 shown bank effectiveness separately during each period.

Table 7: The Average Bank Effectiveness for Both State-Owned s Banks and Privates Banks Based on SFA Method

Period	Weighted Average Effectiveness		
	Privates Banks	State-Owned Banks	Iranian Banks
2006	0.461	0.522	0.502
2007	0.466	0.470	0.469

Table 7: Contd.,			
2008	0.467	0.503	0.493
2009	0.465	0.501	0.471
2010	0.461	0.541	0.480
2011	0.422	0.524	0.468
2012	0.420	0.557	0.489
2013	0.419	0.558	0.491
2014	0.418	0.564	0.510

Source: research findings

Among the full range of the banks, 4 state-owned banks has highest effectiveness.

Effectiveness is a growing trend of private banks, but the effectiveness of state-owned banks is decreasing. But the average effectiveness of state-owned banks is higher than private banks.

CONCLUSIONS

The results showed that the performance of banks with the income approach suggests that state-owned banks higher effectiveness than private banks. But effectiveness is a growing trend of private banks, but the effectiveness of state-owned banks is decreasing. Therefore, the implementation of Article 44 shall be subject to special consideration.

Our results have the following policy implication. Private ownership by itself is not sufficient to insure bank effectiveness in transition countries because we find no statistically significant evidence of an adverse effect of government ownership relative to private domestic ownership. The domestic private should greater focus on attracting deposits. In addition, private banks should use modern technology and rely on the human capital better than state-owned banks.

Study on factors affecting the banking deposits as a research work is proposed.

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