

Ownership and efficiency in Malaysian banking

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Abstract

Changes in the ownership structure have been an important feature of the evolution of the Malaysian banking sector. In 1986, the Banking Act of 1973 was amended to limit equity ownership by individual companies in a bank to 20 percent, and by a family-owned company or an individual person to 10 percent. This paper analyzes whether ownership structure has any effect on bank efficiency in Malaysia. Cost efficiency is estimated using the Stochastic cost frontier approach. Tobit regression analysis is then employed to determine the effect of ownership variables on bank efficiency. The results indicate that first, state-owned banks and local banks are less efficient than privately owned banks and foreign banks, respectively. Second, we find a positive correlation between ownership concentration and firm's performance suggesting that large investors, to some extent, have the incentive as well as the power to monitor and control the behavior of management, and thus assume a significant role in corporate governance.

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1. Introduction

Much has been written about the institutional changes in ownership that have marked the development of the Malaysian banking sector from the colonial days (among others, Hing [1987], and Gomez and Jomo [1997]). During the 1950s, the foreign banks dominated the banking industry in Malaysia. In addition, besides the predominantly British foreign banks, almost all local banks incorporated in Malaya before independence were owned by the Chinese. The first Malay bank, the Malay National Banking Corporation, was incorporated in Kuala Lumpur only in 1947, almost 50 years after the first Chinese bank was established. In 1970, Malay ownership in banking and insurance came to only about 3.3 percent, while the Chinese held 24.3 percent, Indians 0.6 percent, and foreigners a dominant 52.2

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percent. By 1986, however, ownership or management control of banking services by Bumiputera and government agencies had increased to between 60 and 70 percent. This major shift in the pattern of bank's ownership has been attributed to the New Economic Policy (NEP) of restructuring wealth, particularly on achieving 30 percent Bumiputera ownership of the corporate sector by 1990.

Changes in ownership concentration in Malaysian banks have also taken place. The authorities have encouraged the dispersion of bank ownership and the separation of ownership from management. The Banking Act of 1973 was amended in 1986 to limit the amount of equity ownership by individual companies in a bank to a maximum of 20 percent, while a family-owned company or an individual person could own a maximum of 10 percent in a financial institution (the amendments, however, did not apply to those who already owned more than the newly stipulated limits before the amendment). At this time, the banking institutions were also encouraged to seek public listing. This allowed for both dispersion of ownership and capital expansion. The 1989 Banking and Financial Act also required all foreign banks to incorporate locally within a period of five years from October 1989 in order to demonstrate a more direct and permanent financial commitment to Malaysia. The foreign banks were, however, permitted to retain 100% ownership.

This paper attempts to answer the question of whether these ownership changes have had any effect on the bank's efficiency and hopefully address the ownership-performance issue from the perspective of the Malaysian banking industry. This issue is very pertinent since the domestic banking sector will no longer remain protected, given Malaysia's commitment to liberalize its financial sector under the General Agreement on Trade in Services (GATS).

The rest of the paper is organized as follows. Section 2 discusses the theoretical background of the relationship between ownership and performance. Section 3 presents the measure of efficiency used and the empirical model to be estimated. Section 4 describes the data used. Section 5 contains the empirical results. Section 6 concludes the paper.

2. Ownership and performance: theoretical background

The issue of the relationship between ownership and performance has been widely studied. However, theoretical and empirical evidences have not conclusively resolved the issue. In the literature on public versus private ownership, the property rights advocates have hypothesized that private enterprises would perform more efficiently and more profitably than public enterprises (e.g. de Alessi [1980]). The potential threat of losing jobs and the resultant adverse reputation effects in the managerial market were argued to be effective mechanisms in disciplining management and aligning shareholder and managerial interests in private enterprises.

The potential of such shareholder rebellion is virtually absent in public enterprises due to the nontradability of its shares. In addition, public choice theorists point out that multiple and frequently changing objectives of these enterprises arising from government's attempt to accommodate diverse interest groups also exacerbates agency problems since outcomes of managerial decisions become more difficult to measure and monitor (Estrin and Perotin [1991]). However, several studies have argued that ownership does not matter in the presence of sufficient competition between private and public enterprises (e.g. Caves and Christensen [1980]).

In their seminal contribution to the issue of the separation of ownership and control, Berle and Means [1932] argue that in practice managers do not pursue the interests of shareholders. Instead they pursue their own interests, which results in waste and inefficiency. The contrast between the legal rights of shareholders and the *de facto* control of managers highlighted by Berle and Means led to the development of the agency approach to corporate governance (e.g., Coase [1937] and Hart [1995]). Stiglitz [1985] has argued that concentrated ownership of the firm's shares is one of the most important ways through which value maximization can be ensured. At one extreme, a single person or family owns the firm and there are significant incentives to maximize its value. At the other extreme, shares are held by a large number of people, no one of whom holds a large stake. In this case, nobody has an incentive to monitor the management and ensure it is running the firm in the shareholder's interest. In the intermediate case, where one or more shareholders owns a large stake and many small shareholders hold a few shares, the large shareholders may have an incentive to monitor the firm's management and ensure it maximizes share value.

Existing empirical evidence on the ownership-performance issue closely mirrors the diversity in theoretical opinion and surveys of such evidence reach no consensus in their conclusions. On the one hand, the survey by Millward and Parker [1983] concludes that there is no systematic evidence that public enterprises are less cost-effective than private firms. On the other hand, Vining and Boardman [1992] find the weight of evidence to be in favor of the property rights and public choice viewpoints.

3. Methodology

We will compare the performance of firms with different degrees of ownership concentration as well as different types of shareholders. For this purpose, we introduce cost efficiency scores as a measure of a firm's performance. The cost efficiency scores are then regressed on bank's concentration ratios and ownership, respectively. By doing so, we expect to find out which pattern of ownership structure affects the performance of the banks, and if the degree of ownership concentration matters.

Using pooled data for the banks, we run regressions of efficiency on ownership concentration ratios, state/private ownership, and local/foreign ownership to determine their effects on bank performance. The equation to be estimated is as follows:

$$\begin{aligned} INEFF_{it} = & \beta_0 + \beta_1 STATE_{it} + \beta_2 FOREIGN_{it} + \beta_3 CR_{it} + \beta_4 CR_{it}^2 \\ & + \beta_5 ASSET_{it} + \beta_6 AGE_{it} + \beta_7 YR95 + \beta_8 YR96 + \nu \end{aligned} \quad (1)$$

INEFF is the cost inefficiency score obtained from the stochastic cost frontier estimation. Ownership Concentration Ratio, *CR*, is measured by the percentage of shares controlled by the top five shareholders. CR^2 is the square of concentration ratio to take account of a possible non-linear relationship between concentration and efficiency. *STATE* is a dummy variable that takes a value of 1 if the bank is state-owned and 0 if the bank is privately owned. *FOREIGN* is a dummy variable that takes a value of 1 if the bank is foreign and 0 if local. Factors other than ownership structure may also affect performance. To control for these factors we include other variables. *ASSET* is the value of total assets of the bank. It measures the effect of bank size. *AGE* is the age of the bank which controls for experience. *YR95* and *YR96* are dummy variables that take a value of 1 if the observation is in the year 1995 or 1996, respectively. The year variable is included to control for any difference in efficiency across time.

3.1. Cost efficiency estimation

Our measure of bank performance is the cost efficiency. To get the cost efficiency scores, we estimate the following stochastic cost frontier translog function:

$$\begin{aligned} \ln C_{it} = & \beta_0 + \sum_{j=1}^n \beta_j \ln y_{it} + \sum_{k=1}^m \beta_k \ln w_{kit} + \frac{1}{2} \sum_j \sum_l \beta_{jl} \ln y_j \ln y_l \\ & + \frac{1}{2} \sum_k \sum_p \beta_{kp} \ln w_{kit} \ln w_{pit} + \frac{1}{2} \sum_j \sum_k \beta_{jk} \ln y_{jit} \ln w_{kit} + \beta_q t + u_{it} + v_{it} \end{aligned} \quad (2)$$

where $\ln C_{it}$ is the natural logarithm of the total cost; $\ln y_{it}$ is the natural logarithm of the j th output ($j = 1, 2, \dots, n$); $\ln w_{kit}$ is the natural logarithm of the k th input price ($k = 1, 2, \dots, m$); t is the year of observation; and b 's are the coefficients to be estimated. The v_{it} 's are random variables associated with measurement errors in the input variable or the effect of unspecified explanatory variables in the model and the u_{it} 's are non-negative random variables, associated with inefficiency of input used.

In this study, the banks' total cost includes the sum of expenses on wages and salaries, land, buildings, and equipment and interest on deposits, while the outputs are the dollar amounts of commercial and industrial loans, other loans, time deposits, demand deposits, and securities and investments. The input price includes expenses

on wages and salaries per employee (unit price of labor), expenses on land, buildings, and equipment per dollar of assets (unit price of physical capital), and expenses on interest per dollar of deposits (unit price of financial capital).

The cost efficiency of input used for the i -th bank in the t -th year of observation, given the values of the outputs and inputs, is defined as the ratio of the stochastic frontier input use to the observed input used. The stochastic frontier input use is defined by the value of input use if the cost inefficiency effect, u_{it} , is zero (i.e., the bank is fully efficient in the use of input). If a translog stochastic frontier cost function is used, the cost efficiency for firm i at time t is defined by equation (3)

$$\begin{aligned} CE_{it} &= \frac{C_{it}(y_{it}, w_{it}; \beta) \exp(v_{it})}{C_{it}(y_{it}, w_{it}; \beta) \exp(v_{it} + u_{it})} \\ &= \exp(-u_{it}) \\ &= \exp(-z_{it}\delta - \eta_{it}). \end{aligned} \quad (3)$$

where $CE_{it} \leq 1$. The reciprocal of this value, $\exp(u_{it})$, which is no less than one, can be interpreted as a measure of the cost inefficiency of input use.

4. Data

The data for estimating the cost frontier function for ASEAN banks are drawn from IBCA *bankscope*. The *bankscope* data set covers of all types banks in almost all the countries in the world. For our study, the sample banks are almost all the commercial banks in Malaysia. The data were extracted from non-consolidated income statements and balance sheets corresponding to the period 1994-1996. After the banks with missing values of outputs and/or inputs were dropped, the final sample consisted of 31 banks. Hence, the total number of observations over the three-year period is 93. In our study a foreign bank is defined as a bank with at least 51 percent of shareholders residing in foreign countries. Using this definition, the number of local and foreign banks is twenty-four and seven, respectively. There are five state-owned banks and the rest are private-owned. Table 1 presents a summary of statistics for all the banks in the sample.

5. Empirical results

This section reports the results of efficiency scores obtained from estimating the stochastic cost frontier function and the regression of efficiency scores on the ownership concentration ratios, state/private ownership and local/foreign ownership. Table 2 provides the average inefficiency scores for each of the banks in the sample from 1994-1996. The average level of cost efficiency for the whole sample is 1.069.

This indicates that, on average, observed cost is almost 6.9 percent more than the best-practice cost.

We now analyze the effect of the ownership structure on the efficiency scores. Since the inefficiency scores derived are unbounded from above, and a lower bound of 1, one can then think of the inefficiency scores as being censored at 1. Consequently, the most efficient banks in the sample received a score of 1. Tobit analysis of the inefficiency scores is therefore a more appropriate tool compared to OLS.

The ordinary least squares (OLS) method was first used to check whether OLS assumptions were not violated. The Box-Pierce statistic was insignificant indicating that the error terms were non-autocorrelated, while the Breusch-Pagan statistic for testing heteroskedasticity was also insignificant, indicating that the null hypothesis of homoskedasticity could not be rejected. The Tobit regression results in Table 3 indicate that the coefficient of *CR* is negative and statistically significant, implying that inefficiency of input use by the banks tends to decrease with ownership concentration. The positive effect of ownership structure may not be the best way to improve the economic efficiency of banks since nobody has an incentive to monitor the management and ensure it is running the banks in the shareholders' interest. However, the coefficient of *OCR*² is positive and statistically significant, implying that too much concentration of ownership also tends to reduce bank efficiency.

To further analyze how different is bank efficiency across shareholders' concentration, the banks were divided into two categories: banks with shareholders' concentration of less than 0.5 and those with greater than 0.5. The average inefficiency scores for each category were then calculated. The results in Table 4 indicate that banks with shareholders' concentration of less than 0.5 and banks with shareholders' concentration greater than 0.5 are 5.9 percent and 4.5 percent more inefficient, respectively, than the fully efficient bank.

Table 1. Summary statistics for sample banks:1989-1996
(in thousand US dollars)

	<i>Mean</i>	<i>Standard Deviation</i>	<i>Minimum Value</i>	<i>Maximum Value</i>
Assets	4,002,547	5,065,059	223,984	25,345,472
Loans	2,251,141	2,700,862	45,748	14,320,472
Deposits	2,572,412	3,146,612	136,690	15,472,519
Securities/Investments	333,999	568,652	5,019	2,976,732
Wages	32,968	41,851	781	194,921
Interests	160,091	212,685	4,268	1,047,953
Non Interests	29,121	37,367	830	181,857
Total Costs	222,181	288,267	7,619	1,382,244

Table 2. Average cost inefficiency scores of banks in Malaysia

<i>Bank</i>	<i>Average cost Inefficiency score</i>
Ban Hin Lee Bank Berhad	1.049
Bank Bumiputera (M) Berhad	1.023
Bank of Commerce	1.02
Bank Pertanian Malaysia	1.259
Bank Simpanan Nasional	1.341
Bank of Tokyo-Mitsubishi (M) Berhad	1.023
Bank Utama (M) Berhad	1.019
BSN Commercial Bank	1.034
Chung Khiaw Bank (M) Berhad	1.063
Deutsche Bank (M) Berhad	1.101
EON Bank Berhad	1.048
Hock Hua Bank Berhad	1.044
Hock Hua Bank (Sabah) Bhd.	1.045
Kwong Yik Bank Berhad	1.052
Malayan Banking Berhad	1.028
Multi-Purpose Bank Berhad	1.021
OCBC Bank (M) Berhad	1.018
Oriental Bank Berhad	1.056
Overseas Union Bank (M) Berhad	1.016
Pacific Bank Berhad	1.04
Perwira Affin Bank	1.036
Phileo Allied Bank (M) Bhd	1.268
Public Bank Berhad	1.051
RHB Bank Berhad	1.035
Sabah Bank Berhad	1.033
Southern Bank Berhad	1.106
Sime Bank Berhad	1.076
Standard Chartered Bank (M) Bhd	1.144
United Overseas Bank (M) Bhd.	1.037
Wah Tatt Bank	1.026
Mean	1.069

Table 3. Tobit regression of ownership structure on cost inefficiency scores

<i>Regressor</i>	<i>Coefficient</i>	<i>t-ratio</i>
intercept	-0.311**	-3.69
CR	-0.022*	-1.87
CR ²	0.012	1.93
State	0.052**	2.34
Foreign	-0.015*	-1.67
Asset	-0.003**	-2.01
Age	0.002	1.01
YR95	0.162	0.63
YR96	0.136	1.34
Adjusted R ²	0.56	
Breusch-Pagan statistic	1.23	
Box-Pierce statistic	1.45	

* statistically significant from zero at the 10% level.

** statistically significant from zero at the 5% level.

Adjusted R², Breusch-pagan statistic and Box-Pierce statistic are from OLS estimation.

Table 4. Average cost efficiency by ownership and shareholders' concentration

	<i>Mean</i>	<i>Min.</i>	<i>Max.</i>	<i>S.D</i>
<i>By type of ownership</i>				
State-owned	1.16	1.02	1.34	0.16
Privately-owned	1.06	1.02	1.27	0.05
<i>By shareholders' concentration</i>				
Local	1.07	1.02	1.34	0.09
Foreign	1.06	1.02	1.14	0.05
< 0.5	1.06	1.04	1.11	0.03
≥ 0.5	1.05	1.02	1.26	0.06

The coefficient of *STATE* is positive and significant indicating that state-owned banks are less efficient than privately owned banks. These results are consistent with the findings of Karim [2001] using ASEAN banking data and the findings of most studies on the relative efficiency of public versus private ownership (for example, Barth, Caprio, and Levine [2000] and Laporta, Lopez-de-Silanes and Schleifer [1999]).

To further analyze the degree to which state-owned banks are more inefficient than privately owned banks, average cost inefficiencies for each type of bank were calculated. The results in Table 4 indicate that privately owned banks are 10.9 percent more efficient than state-owned banks.

The coefficient of *FOREIGN* is negative and statistically significant at the 10 percent level, implying that foreign banks are more efficient than local banks. The results highlight the need for local banks to increase their competitiveness to compete with foreign banks especially in this era of financial market liberalization. To further analyze the degree to which foreign banks are more efficient than local banks, average cost inefficiencies for each type of bank were calculated. The results indicate that foreign and local banks are 5.7 percent and 7.0 percent more inefficient, respectively, than the fully efficient bank.

The coefficient of *ASSET* is negative and significant indicating that inefficiency decreases with bank size. Increases in scale of operation allow exploitation of gains from cost efficiency. This result further supports the findings by Karim [2001] that the merger of banks in Malaysia will increase the competitiveness of Malaysian banks.

The coefficient of *AGE* is positive but not statistically significant. This is not surprising since for a long time, Malaysian banks have been part of mergers, hence, unable to fully capture the experience and lessons had they been solely responsible for bank performance.

The coefficients of *YR95* and *YR96* are not statistically significant implying that there are no significant improvement in bank efficiency over the three-year period.

6. Conclusion

Empirical evidence presented in this paper pointed to the inefficiencies related to the ownership of banks, and to the importance of relative ownership concentration. State-owned banks were found to be less efficient than privately owned banks, hence supporting the privatization of state-owned banks. Foreign banks are found to be slightly more efficient than local banks suggesting that local banks have to increase their competitiveness to compete with foreign banks especially in this era of financial market liberalization.

We found a positive correlation between ownership concentration and firm's performance, suggesting that large investors have the incentive as well as the power to monitor and control the behavior of the management and have a significant role in corporate governance. Overly dispersed ownership structure may not be the best way to improve bank performance. However, too concentrated ownership can be detrimental to bank efficiency. Therefore, a certain degree of ownership

concentration is needed. This finding is largely consistent with those of Claessens (1995). Furthermore, the findings support the rationale for the 1986 amendment to the Banking Act of 1973 which limits the amount of equity ownership by individual companies in a bank to a maximum of 20 percent, and that of family-owned companies or individuals to a maximum of 10 percent in a financial institution.

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