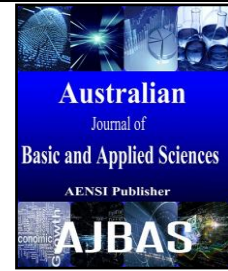




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Measuring the Performance and Efficiency of top Listed Government Linked Companies (GLCs)

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ABSTRACT

Government have direct controlling stake in listed GLCs especially under federal such as G20. GLCs would be able to create a platform to generate and enrich knowledge in key sectors and able to implement government policies. The aim of this study is to measure the performance and efficiency of top listed GLCs in Malaysia. Data envelopment analysis (DEA), that known as linear programming method was employed to measure the performance of GLCs from the period of 2004Q1 to 2013Q4. The DEA scores indicate that most of GLCs are efficient in 2010Q1 and inefficient in 2007Q2. Overall, most of GLCs start to be efficient start from 2008 to 2013. Only few companies such as Axiata, BIMP, CCM, CIMB, MAS and UEM have to improve their performance to be more efficient.

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INTRODUCTION

Based on World Economic Forum, Malaysia has attained 25th place in Global Competitiveness Index as a result of the proficiency, competitiveness and stable financial sector. However, these are insufficient for Malaysia to move out of from middle income trap. Previous studies found that GLCs failed to meet the expectations whereby more extensive Malaysia Broader Market on all key financial points except size, Feng and Tong (2004). Based on CIMB report, GLCs have fundamentally beaten the more extensive stock exchange market in term of aggregate shareholder returns and dividend yield. This may well be more in trust and foresight instead of in real performance, PCG (2005). After the implementation of New Economic Model (NEM), we expect that GLCs can improve the financial development yet despite everything it being an inquiry in view of the patterns of their income towards Malaysia GDP.

Recently, Malaysia is attempting to accomplish high development through business. In this manner, government assumes a pivotal part in the majority of GLCs with a specific end goal to attain high profits. GLCs are the spine for Malaysia economy, Ahmad Kaseri and Wan Fauziah (2012). The nature of GLCs had enhanced particularly after the Economic Transformation Program (ETP). For instance, in 2006, GLCs contributed 36 percent or RM260

billions of aggregate market capital of Bursa Malaysia as stated by Saleh, Kundari and Alwi (2011).

In spite of the fact that GLCs have been a significant component in financial development of Malaysia, their performance has lingered behind non-GLCs, Lemmon and Lin (2003). Undoubtedly, their performance is commonly much poorer than non-GLCs and truly various misfortunes and must be bail out by government. For cases Malaysian Airline System (MAS) and United Engineers Malaysia (UEM) which were fizzled with expansive socio-financial matters suggestions. Numerous different GLCs seem to fall apart in their financial performance.

Several methods for effective evaluation of performance involving multiple variables have recently been conducted. DEA able to measure multiple inputs and outputs in production and does not involve specific functional relationship. Thus, this paper examined the performance of selected top listed of Government Linked Companies (GLCs) and methodology on measuring the efficiency by using DEA model. Finally, we present the result and provide the conclusion.

MATERIALS AND METHODS

Data Source and Sample: The sample used in the research is the 17 top listed Government Linked

Companies (GLCs) in Malaysia. The data are obtained from the ETP report and financial statement of each company. Only companies that are listed in bursa are selected and the period of analysis is from 2004Q1 to 2013Q4. The analysis was conducted using DEAP.

Input and Output Variables: This study will use one input and six outputs indicators to measure the performance of those companies. Total operating expenditure is used as input and six outputs used were rate of revenue, rate of net profit, rate of assets, return on revenue, return on equity and return on assets. Total operating expenditure as an input show the cost value of GLCs. Three output measures performance while the next three measures denote the profitability ratios. This is based on previous study by Mohamad and Said (2012).

Data Envelopment Analysis (DEA): Data envelopment analysis (DEA) was originally created by Charnes, Cooper and Rhodes (1978) and focused around the developer work of Farrell (1957). Since that time, there have been extensive scrutinizes to develop and apply the model. The model was used to measure the efficiency of non-profit organizations such as school and hospitals because of their given inputs and outputs which are not determinate in unified units, Friedman and Stern (1998). However, business firms also use it to analyze financial values, Erkut and Hatice (2007).

By utilizing DEA based methodology, Tahir and Yusof (2011) assessed the efficiency of fourteen public listed companies in Malaysia and come out with result that only one company that was generally effective all through the time of examination. DEA is employed to evaluate the managerial performance of organizations, for example business firms, schools, hospitals and financial institutions, El- Mashaleh, Rababeh and Hyari (2010).

There three advantages of DEA, whereby DMU can be recognize in single effectiveness score, empower positioning among DMU and focus enhancements in every DMU. The input orientation target reduction of level of inputs while the outputs are constant whereas the output orientation target the maximize level of output without increase in inputs, Cooper, Seiford and Tone (2001). Moreover, variable returns to scale (VRS) by Banker, Charnes and Cooper (1984). is utilized. The BCC model utilizes in examining scale efficiency whether increasing, constant or decreasing returns in production that is a technically efficient under VRS model). Moreover, variable returns to scale shows a change in the input leads to a disproportional change in the output. Hence, CCR and BCC model helps to determine the overall technical and scale efficiency of the firms, Sarkis (2000).

Table 1: Descriptive Variable of input and output in the period of 2004q1- 2013q4

INDICATOR	MEAN	MEDIAN	MAX	MIN
INPUT	64.30	76.50	13.00	32.75
Total Operating Expenditure				
OUTPUT				
Rate of Revenue	10.00	9.02	18.46	3.58
Rate of Net Profit	10.06	9.54	22.36	-8.29
Rate of Assets	9.79	8.30	17.69	5.27
Return on Revenue	13.35	12.53	23.59	2.59
Return on Equity	13.35	12.55	23.59	2.59
Return on Assets	4.49	4.28	7.01	2.37

Table 2: Value of TE, PTE, SE of all GLCs for the entire period of research (in percentage)

DMU	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004-2013
TECHNICAL EFFICIENCY											
Mean	0.684	0.690	0.620	0.740	0.869	0.893	0.941	0.848	0.891	0.877	0.805
Median	0.715	0.770	0.559	0.864	0.868	0.888	0.940	0.847	0.887	0.892	0.861
Maximum	1	1	1	1	1	1	1	1	1	1	1
Minimum	0.466	0.365	0.551	0.363	0.858	0.877	0.925	0.840	0.877	0.822	0.363
Standard deviation	0.182	0.220	0.127	0.251	0.011	0.019	0.016	0.008	0.015	0.037	0.155
PURE TECHNICAL EFFICIENCY											
Mean	0.855	0.780	0.817	0.655	0.869	0.981	0.941	0.848	0.891	0.877	0.851
Median	0.850	0.770	0.817	0.817	0.868	0.981	0.940	0.847	0.887	0.892	0.867
Maximum	1	1	1	1	1	1	1	1	1	1	1
Minimum	0.827	0.723	0.807	0.009	0.858	0.921	0.925	0.840	0.877	0.822	0.723
Standard deviation	0.028	0.056	0.009	0.361	0.011	0.003	0.016	0.008	0.015	0.037	0.048
SCALE EFFICIENCY											
Mean	0.826	0.984	0.772	0.940	0.989	0.987	0.986	0.982	0.989	0.999	0.945
Median	0.861	0.891	0.668	0.882	0.921	0.982	1.012	1.170	1.039	1.078	0.950
Maximum	1	1	1	1	1	1	1	1	1	1	1
Minimum	0.488	0.444	0.648	0.386	0.862	0.879	0.981	0.979	0.899	0.964	0.753
Standard deviation	0.313	0.363	0.221	0.369	0.005	0.003	0.004	0.094	0.010	0.071	0.217

RESULTS AND DISCUSSIONS

Table 1 and Table 2 below show the descriptive statistics of input and output and the value of technical efficiency, pure technical efficiency and scale efficiency for the research period.

In this study, we will employ VRS output-orientation model with the default weights suggested by the software. Furthermore, VRS scores tend to measure the value of pure technical efficiency (PTE). The result of VRS is presented below.

Pure Technical Efficiency: The VRS efficiency scores measure the value of pure technical efficiency (PTE) without the effects of scale operations. From the analysis, we can see that most of the GLCs able to get high value of efficiency if they are concentrate

on operational rather than management. The score of VRS, for instance in 2007Q2 with the value of 0.862, the value of efficiency are low to 0.363. In 2010Q1, GLCs VRS value is 0.957 and able to get high efficient of CRS. However, overall result shows that the companies are inefficient on particular year because of low of operational value rather than management. Most of GLCs are inefficient in 2007Q2 and only two companies (Affin bank and UMW) are efficient with the value of 1.000. However in 2010Q1, most of the GLCs recovered and efficient such as Affin bank, TM, Boustead, CCM, CIMB, Airport, MBSB, MRC, Sime Darby, TH plantations, TNB, UMW and Maybank are efficient with the value of 1.000.

Table 3: Pure Technical Efficiency Value of each DMU for the period 2004- 2013 (in percentage)

DMU	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
AFFIN BANK	0.841	0.960	1	1	1	1	0.941	1	1	1
TM	1	0.840	1	1	0.513	0.787	0.647	1	0.745	0.892
AXIATA	1	1	0.84	0.636	0.821	0.946	0.838	1	0.692	0.718
BIMB	1	1	1	1	1	1	1	1	1	1
BOUSTEAD	0.789	0.772	0.802	1	1	0.891	1	0.905	0.862	1
CCM	0.825	0.850	1	1	1	1	0.843	0.728	0.542	0.233
CIMB	1	1	1	1	1	1	1	1	1	1
AIRPORT	0.814	0.591	0.633	0.772	0.800	1	0.876	0.688	0.723	0.523
MAS	1	1	0.783	1	0.840	0.893	1	1	1	0.379
MBSB	0.475	0.574	0.421	0.312	0.434	0.947	1	1	1	1
MRC	0.512	0.586	0.565	0.642	1	1	1	0.959	0.735	0.994
SIME DARBY	0.865	1	0.69	0.984	1	1	1	0.868	0.925	0.962
TH	1	1	1	1	0.964	0.844	1	0.879	0.930	1
PLANTATIONS										
TNB	1	0.422	0.658	0.952	0.964	1	1	0.931	0.985	0.848
UMW	1	1	1	1	1	1	1	0.998	1	0.618
MAYBANK	0.719	0.642	0.545	0.841	1	1	0.672	1	1	0.922
UEM	1	0.666	1	1	1	1	0.905	0.808	1	0.878

In 2004, there are 9 GLCs reaching the efficient level (TM, Axiata, BIMB, CIMB, MAS, TH Plantations, TNB, UMW and UEM), while remaining 8 GLCs are inefficient. The most inefficient GLC is MBSB with the value of 0.354 or 35.4%. Overall, we found that for PTE values, there are 7 efficient GLCs and 10 inefficient ones (2005); 8 efficient GLCs and 9 inefficient ones (2006); 10 efficient GLCs and 7 inefficient ones (2007); 10 efficient GLCs and 7 inefficient ones (2008); 11 efficient GLCs and 6 inefficient ones (2009); 10 efficient GLCs and 7 inefficient ones (2010); 8 efficient GLCs and 9 inefficient ones (2011); 8 efficient GLCs and 9 inefficient (2012) ones and finally in 2013 6 efficient GLCs and 11 inefficient GLCs.

Scale Efficiency: Scale efficiency ($SE = TE/PTE$) can be calculated by using the ratio of technical efficiency and pure technical efficiency. From the result, we can see that companies that concentrate on operational are able to get high value of technical efficiency. For instance, technical efficiency of GLCs is high with the mean of 0.957 in 2010Q1 and the scale efficiency on that particular year is 1.000. In 2007Q2, the scale efficiency value is 0.386 and this make the technical efficiency value

on that particular year is only 0.363. Therefore, we can conclude that the companies that concentrate more on operational are able to get high value of technical efficiency compare to GLCs that efficient on management.

Return to Scale: Inefficiency and efficiency are based on scale operation by each company. DMUs that are not operating at the most efficient levels cannot be fully efficient. The inefficiency arise when firms operating under DRS or IRS. A DMU is said to be operating under DRS or IRS if changing all inputs by proportion results with proportional change in outputs either smaller or large. Furthermore, in our analysis only eight GLCs are mostly operating under CRS such as Malaysia Airport, CCM, CIMB, MBSB, Maybank, Affin Bank, TM and Boustead. The remainder all are operating under DRS.

Finally, the result shows that most of the companies are operating under DRS. However, DEA also have limitation as any other efficiency or performance measuring technique. DEA efficiency scores usually sensitive to input- output used and sample size. Overall, the study shows that, GLCs tend to be efficient start from 2007 to 2013. Only few companies such as Axiata, BIMB, CCM, CIMB,

MAS and UEM have to improve their performance to be more efficient.

Conclusions:

Similar to studies of Mohammad and Said (2012), none of GLCs were operating under IRS from the period of 2004Q1 to 2013Q4. Hence, GLCs have to be more efficient in term of management and operational. More investment should be encouraged and government should give more concentration on those companies. This is because of their role in increasing GDP growth. GLCs outputs should proportional inputs in production. Furthermore, future studies have to classify companies through sectors and other input and output variables could be included to have more specific result. However, the findings could help the management and technical of the company to assess their assets and resources to increase the performance and efficiency and overall contribute to GDP of Malaysia.

Finally, future studies should be conducted with much improvement from the current study. It is recommended that future studies should be conducted by using more appropriate indicators and increases the sample of study to improve the quality and efficiency of GLCs.

REFERENCES

- Ahmad Kaseri Bin Ramin and Wan Fauziah Wan Yusoff, 2012. Business process outsourcing: Malaysian perspective. *International Journal of Marketing and Management Research*, 3(2): 65-76.
- Ang, J.S. and D.K. Ding, 2005. Government Ownership and the Performance of Government Linked Companies: The Case of Singapore, *Journal of Multiple Financial Management*, pp: 1-25.
- Banker, R.D., A. Charnes and W.W. Cooper, 1984. Some Models for Estimating Technical and Scale Inefficiencies in Data Envelopment Analysis. *Journal of Management Science*, 30: 1078–1092.
- Charnes, A., W.W. Cooper and E. Rhodes, 1978. Measuring the efficiency of decision making units. *European Journal of Operational Research*, 2: 429-444.
- Cooper, W.W., L.M. Seiford and K. Tone, 2000. *Data Envelopment Analysis*. Kluwer Academic Publishers.
- El-Mashaleh, M.S., S.M. Rababeh and K.H. Hyari, 2010. Utilizing data envelopment analysis to benchmark safety performance of construction contractors. *International Journal of Project Management*, 28: 61–67.
- Erkut, D. and D. Hatice, 2007. Measuring the performance of manufacturing firms with super slacks based model of data envelopment analysis: An application of 500 major industrial enterprises in Turkey. *European Journal of Operational Research*, 182: 1412–1432.
- Farrell, M.J., 1957. The Measurement Productive Efficiency. *Journal of Royal Statistical Society. Series A (General)*, 120(3): 253-290.
- Feng, F. and W.H.S. Tong, 2004. Do government-linked companies underperform? *Journal of Banking and Finance*, 28: 2461–2492.
- Friedman, L. and Z. Sinuany-Stern, 1998. Combining ranking scales and selecting variables in the DEA context: The case of industrial branches. *Computers and Operations Research*, 25(9): 781-791.
- Lemmon, M.L. and K.V. Lins, 2003. Ownership Structure, Corporate Governance, and Firm Value: Evidence from the East Asian Financial Crisis. *Journal of Finance*, 58 (4): 1445-1468.
- Mostafa, M., 2007. Evaluating the comparative market efficiency of top listed companies in Egypt. *Journal of Economic Studies*, 34(5):430-452.
- PCG, 2005. GLC transformation programme progress review March 2008. Transformation Management Office.
- Ramirez, C.D., L.H. Tan, 2003. Singapore Inc. versus the private sector: Are government-linked companies different. IMF Working Paper, WP/03/156, July.
- Mohamad, N.H. and F. Said., 2012. Profitability Performance of Selected Top Listed Malaysian GLCs and non-GLCs. *International Journal of Trade, Economics and Finance*, 4(4).
- Saleh, M., Kundari and Alwi, 2011. The Timeliness of Recognizing Accounting Income in Malaysia: The Influence of Government Linked Companies Transformation Programme. *Asia Journal of Accounting and Governance*, 2: 41–50.
- Sarkis, J., 2000. Comparative Analysis of DEA as a Discrete Alternative Multiple Criteria Decision Tool. *EJOR*, 123(3): 543-557.
- Tahir, I.M. and K.N.C.K. Yusof, 2011. Estimating Technical and Scale Efficiency of Malaysian Public Listed Companies: A Non Parametric Approach. *Interdisciplinary Journal of Research in Business*, 1(7): 01-07.
- Wu, C.C., S.C. Kao and H.H. Cheng, 2006. Examining Retailing Performance via Financial Index. *Asia Pacific Management Review*, 11(2): 83-92.
- Zhu, J., 2000. Multi-factor performance measure model with an application to Fortune 500 companies. *European Journal of Operational Research*, 123: 105–124.