

# **CORPORATE GOVERNANCE AND ITS EFFECT ON THE EFFICIENCY OF GENERATING FINANCIAL PERFORMANCE: EVIDENCE FROM THE OIL AND GAS INDUSTRY OF MALAYSIA**

**Tze San, Ong<sup>1</sup>**

**Wei Ni, Soh<sup>1</sup>**

**Boon Heng, Teh<sup>2</sup>**

**Sin Huei, Ng<sup>3</sup>**

<sup>1</sup>Faculty of Economics and Management, Universiti Putra Malaysia

<sup>2</sup>Faculty of Management, Multimedia University, Malaysia

<sup>3</sup>INTI International University, Malaysia

## **ABSTRACT**

Capital inflow and joint ventures by investors are very significant in rapidly developing countries, particularly in sectors that require a large capital commitment and high technology support. Therefore, companies will form the most strategic decision to remain competitive in the market to attract and retain investors. Corporate governance and financial performance are important elements considered by investors before they decide on where to place their investment funds. Thus, the study of corporate governance and its effect on the efficiency of financial performance becomes an interesting decision-making tool and is a reference point that assists investors to predict the influence of the corporate governance on the capital they invest. Results of this study show that firm size and CEO/chairman duality significantly influence the efficiency of corporate governance in generating financial performance. Surprisingly, setting risk management committee made no difference in financial performance.

## **INTRODUCTION**

Corporate governance is the mechanism and regulation adopted by a firm to manage the interests of its stakeholders to reduce agency conflicts and maximise firm value. Cadbury (1992) described corporate governance as

*'the system by which companies are directed and controlled'*. The role of corporate governance has become more significant as a series of corporate scandals and frauds have led to the destruction of the wealth of shareholders, loss of the well-being of employees, increased white collar crime and record-breaking bankruptcy filings (Solomon, 2010). Bhagat and Bolton (2008) stated that this role took on a new urgency with the repercussions of the collapse of Enron and a sequence of accounting scandals. Thus, corporate governance, which is normally concerned with the association between the internal governance mechanisms of corporations and the public perception of corporate accountability, takes centre stage in enhancing corporate performance.

In the Asian context, the 1997 Asian Economic Crisis was perceived to convey an important lesson: poor corporate governance could lead to severe financial difficulties. This lesson was further evidenced by Ho and Wong (2001), who stated that after the 1997 financial crisis in Asia, most Asian countries pursued the strengthening of their corporate governance, transparency and disclosure levels. Notably in Malaysia, the publication of the Corporate Governance Report in 1999 was seen as a significant effort to improve corporate governance. Good governance creates investor confidence. According to Gompers et al. (2003), good corporate governance improves valuations and enhances financial performance. Consequently, the manner by which management controls and organises firms with greater transparency may affect the performance of the company, and may also determine the degree of investor confidence. Good governance practises may have a significant effect on company performance, with strategic decision-making and effective monitoring being conducted by the board of directors. In short, corporate governance attributes may directly influence the financial performance of a firm.

The financial crisis of 1997 caused alarm in Asian countries, including Malaysia, and heightened the importance of corporate governance issues. As an emerging market in South Asia, Malaysia is rapidly developing in terms of its economy. Thus, strong corporate governance is essential for attracting capital investment into the country. With a remarkably positive stock market presentation, it has attracted considerable foreign investments. Dar et al. (2011) understood that good corporate governance practises enable companies to realise their strategic objectives and meet legal requirements

whilst simultaneously demonstrating their corporate accountability to stakeholders and investors. Dar et al. (2011) quantified that in emerging markets, corporate governance strengthens property rights, reduces capital costs, develops capital markets and cushions vulnerability during financial distress. Thus, corporate governance mechanisms are critical to the efforts of companies to protect investors and stabilise the capital market.

Malaysia has its own best practise Code of Corporate Governance (MCCG, or the Code) to ensure and protect investor confidence through a high level of security against corporate scandals or financial crises. The Code serves as an effective point of reference and a monitoring mechanism for best practises in corporate governance by companies in Malaysia. Shleifer and Vishny (1996) stated that corporate governance provides assurance for the returns of investors. Thus, the confidence of the investors and financial lenders rests upon the principles of corporate governance. As a result, businesses in Malaysia need to apply the most strategic decisions to remain competitive in the market. Malaysian companies need to sustain and develop in the global market to attract reputable investors as shareholders or joint venture partners. Thus, good financial standing is a critical parameter to be considered and monitored in attracting investments. From the perspective of investors, corporate governance and financial performance are two key areas that should be considered before making an investment decision.

Obviously, good practise of corporate governance by the management can enhance transparency, thereby improving the financial performance of a firm. An independent board is necessary to mitigate the principal-agent relationship. The creation of a board of directors as part of the arrangement for corporate governance enables the performance of firm to be monitored and the interests of shareholders protected. If a firm practises corporate governance through an effective board of directors, the value of the firm can be expected to increase, and the wealth of the shareholders will be enhanced accordingly. Furthermore, the Asian economic crisis and scandals in the corporate world, coupled with the seemingly poor performance of companies, have raised the imperative to understand the corporate governance attributes that contribute to the good performance of organisations.

Oil and gas operations are considered as one of the most interesting sectors to be studied as it involves a heavy capital commitment and an inherent level of risk that requires top notch strategic planning and decision-making. In particular, Searle (2010) accepted that the potential negative social and environmental consequences resulting from the integrated activities of the oil and gas industry are far-reaching. Sharing the same thought, Lazonick (2010) concluded that the uncertain environment in which the industry operates discourages strategic planning and financial commitment required for the development of innovative enterprise. From the perspective of the shipping business, which is divided into market segmentation with unique and different characteristics, the business is recurring, volatile, seasonal and vulnerable to economic conditions and political events (Syripoulos and Tsatsaronis, 2012). With the increase in the activities in oil and gas recovery, the risks associated with humans, property and the environment are increasingly high. Thus, good governance practises are crucial in enabling oil and gas companies to achieve the desired financial performance by being competitive, ethical and sustainable. In the Malaysian context, the significance of the oil and gas industry to the Malaysian economy is indicated by realisation of the government regarding the importance of integrated oil and gas support services to facilitate upstream activities (Khalid, 2012). The oil and gas industry is also considered to be a sector that significantly contributes to the economy. This consideration is indicated by the survey conducted by Halliburton, confirming that the oil and gas sectors are mainstays of the growth of Malaysia, contributing to approximately 20% of the national gross domestic product (Abdullah, 2012).

For this reason, exploring the relationship between the attributes of corporate governance and their effects on the efficiency of financial performance, particularly in oil and gas industry, is crucial and important. Thus, given the significant contribution of the oil and gas industry to the Malaysian economy and given the importance of good business judgment, this study investigates the influence of the attributes of corporate governance on the efficiency of the financial performance of a firm using a sample of Malaysian oil and gas companies. Providing an example of a technical efficiency score could aid in interpreting the role of corporate governance in financial performance. Existing studies on corporate governance and financial performance are mostly based on a general linear regression relationship and few if any link corporate governance to efficiency and its effect on the financial performance of companies.

## **LITERATURE REVIEW**

Previous researchers have conducted a number of investigations on corporate governance and have related it to financial performance.

### **Risk Management Committee**

Demidenko et al. (2010) viewed risk management as an important element of corporate governance because it provides a means of realising corporate objectives and monitoring the performance of an agent by a principal. Walker (2009) stated that the risk management committee monitors the level of risk whilst attempting to maximise returns by advising the board of current risk exposures and future risk strategies. Culp (2002) considered risk management as consisting of specific efforts that establish a buffer or contingency to absorb economic effects and impose controls that will mitigate the extreme losses of a company. As a result, many companies believe that risk management is essential in sustaining a competitive advantage. From the perspective of the oil and gas industry, Demidenko et al. (2010) recognised the risk encountered by companies in dealing with risky businesses such as those in the oil and gas industry, and recommended the establishment of a risk management committee as an effective mitigation mechanism.

Studies on the link between the risk management committee and financial performance are inconclusive. Cummins et al. (2009) noted that risk management and financial activities improve the efficiency and consequently the performance of a firm by reducing costs. Contradicting this, Tufano (1996) found little empirical support for risk management practises as a means of maximising shareholder value. The study of Tufano (1996) discovered that risk management practises of firms, such as hedging to reduce their exposure to risk, are more likely to be related to managerial risk aversion than maximising shareholder value. In the Malaysian context, Yatim (2010) studied the effect of setting up risk management committees in 690 publicly listed companies in Malaysia in 2003. The study discovered a strong relationship between the existence of a risk management committee and board structures, thereby demonstrating a stronger commitment and awareness of the importance of an internal control system. Risk management committees have made a significant contribution to ensuring that risks are mitigated effectively, thereby improving the financial performance of firms.

## **CEO/Chairman Duality**

Another commonly debated corporate governance issue is whether the two key positions in a company, the Board Chairman and the CEO, should be held by two different individuals or by one person. Many studies have addressed the CEO/chairman duality issue with mixed results. Relevant literature has developed points of view both in favour of and against CEO/chairman duality. Jensen et al. (1976) argued that a tendency for the individual holding the two top positions to adopt personal interests, which could affect the overall performance of a firm. Syriopoulos et al. (2012) stated that having dual responsibilities as Board Chairman and CEO dampens effective monitoring, which leads to the possible manipulation of the decisions of the board of directors against the interests of the shareholders. On a similar note, Dar et al. (2011) discovered that the separation of the roles for the CEO and chairman affects the performance of firms as agency problems are greater when the same person holds both positions. Bhagat and Bolton (2008) also discovered an adverse relationship between CEO/chairman duality and financial performance, indicating that the combined role of the CEO and chairman lowers firm performance.

However, some studies show that the CEO/chairman duality can be positive. Tian and Lau (2001) reported a positive relationship when firms have a high level of state ownership, a finding corroborated by Song et al. (2006). Peng (2004) found a moderately positive relationship between CEO/chairman duality and firm performance. Resource dependency theory suggests that preserving and securing resources to facilitate growth or to prevent decline during institutional transitions is a crucial managerial task. Some environments may offer more abundant resources – known as munificence. For example, certain regions attract a significant number of foreign investors who bring not only significant capital but also substantial managerial, technological and governance resources (Luo and Peng, 1999; Zhou et al., 2002; Teh et al., 2012). The effects of resource scarcity and environmental dynamism may be contingent variables moderating the relationship between CEO/chairman duality and firm performance; therefore, the present study predicts that CEO/chairman duality and financial performance are positively related.

Contradicting the expectations of the market, Carapeto et al. (2005) assessed the market valuation of choice of leadership structure using a sample of UK firms. They found that the choice of leadership structure does not particularly diminish agency conflicts. Similarly, a study conducted by previous researchers (for example, Schmid & Zimmerman 2007; Dalton et al., 2011; Al-Matari et al., 2012; Ong and Lee, 2013) on leadership structure found no significant variance in the performance of companies with respect to CEO/chairman duality. In the Malaysian context, using 1994 and 1996 data for publicly listed companies in Malaysia, Abdullah et al. (2004) discovered that board independence is adversely related to CEO/chairman duality. Thus, a company with CEO/chairman duality tends to have a smaller percentage of external directors on its board. They also revealed that the Malaysian business environment is controlled by an independent director, and a majority of companies have implemented a non-duality leadership structure.

## **Firm Size**

Determinants of company size have been broadly used in prior studies<sup>1</sup>. In a similar vein, Talebnia et al. (2010) adopted company size to assess the relationships among the ownership structures in listed companies in Tehran. From a Malaysian perspective, Johari et al. (2008) used company size as control variable to determine the association of board independence, competency, ownership and earnings management of publicly listed companies in Malaysia. Thus, based on the above discussion, company size will moderate the relationship between selected corporate governance attributes and financial performance.

## **Corporate Governance on Oil and Gas Industry**

A number of studies address the issue of corporate governance from the perspective of the oil and gas industry. For example, Azam et al. (2012) conducted a study on the relationship between corporate governance and firm performance from the perspective of the oil and gas sector in Pakistan, whereas Heinrich (2005) conducted a study on corporate governance in the oil and gas industry in Russia. In another context, studies have been conducted on corporate governance mechanisms from the perspective of

---

<sup>1</sup> Refer to Booth & Deli, 1996; Boone et al., 2006; Pizarro et al., 2009.

the shipping sector, which is a sub-section of the oil and gas industry<sup>2</sup>. Interestingly, a study conducted by Syriopoulos et al. (2011) involving a comparison of Greek and Scandinavian shipping firms listed on US equity market discovered that shipping firms have a distinctive divergence from conventional governance practises. In the Malaysian context, despite the importance of the industry to the growth of the country, limited emphasis has been given to corporate governance in the oil and gas industry, and almost no relevant empirical study on oil and gas companies exist.

## **RESEARCH METHODOLOGY**

### **Methodology**

The data envelopment analysis (DEA) technique was used to estimate the efficiency of oil and gas companies in Malaysia. Recognizing the most suitable instrument for this study is important for specifying the assumptions of constant returns to scale (CRS) and variable returns to scale (VRS) and two measures of technical efficiency (input or output orientation measure). The Charnes, Cooper and Rhodes (CCR; 1978) model has an input orientation and presumes CRS. Similarly, the Banker, Charnes and Cooper (BCC; 1984) model assumes VRS. In an input-oriented technical efficiency measurement, output(s) remain constant but inputs are proportionally reduced. Conversely, the output-oriented measure of technical efficiency keeps inputs unchanged, but outputs can be expanded proportionally. In an input-oriented model (input minimization), a favoured output is created with minimum inputs (Yang, 2006). This model is preferred when the output is a given and inputs are flexible. Conversely, in an output-oriented model (output maximization), determinations are made to maximise the output with the given inputs. The optimal model is contingent on accessible flexibility, either with the inputs or outputs (Avkiran, 2001).

The input variables used for this study included employment, expenditure on hardware (computers and electronic equipment), operating disbursement and utility overheads. All these variables are considered flexible according to the requirements. Nevertheless, the output variable may be flexible as it is dependent primarily on financial performance, which might be tied with

<sup>2</sup> Refer to Randoy et al., 2003; Koufopoulos et al., 2005; Syriopoulos & Theotokas, 2007; Koufopoulos et al., 2010.



other fixed elements such as exports and even domestic sales governed by orders received in advance. As a consequence, inputs appear to be more flexible than outputs with regard to the study of the oil and gas industry. Hence, for purposes of this study, the input-oriented DEA model appears to be more applicable than the output-oriented model. Making an optimal judgement between CRS and VRS is also significant (Uri, 2001).

For example, a CRS framework subliminally assumes that decision-making units (DMUs) are operating in the optimum scales and that no significant relation exists between the scales of operations and efficiency. However, such presumptions may not be consistently tenable as different companies operate under different financial constraints and exist in different environments. Conversely, the VRS framework implies that a rise in inputs is expected to result in a disproportionate rise in output. The VRS efficiency score represents technical efficiency (OTE), which measures inefficiencies arising from inappropriate input–output configurations as well as the size of operations. The CRS efficiency score conversely represents pure technical efficiency (PTE) which is a measure of efficiency without scale efficiency (SE). The VRS model is essentially the CRS model with an additional constraint added to the LP<sup>3</sup> problem; thus, this study employs the VRS as the estimation of efficiency scores as the dataset demonstrates a large magnitude of differences that could plausibly be attributed to the existence of large and small companies in the sample (Cooper et al., 2007).

## **Data Sources and Variable Construct**

Data were collected from a final sample of 28 oil and gas companies listed in Bursa Malaysia (Kuala Lumpur Stock Exchange) from the fiscal years 2007 to 2011. The selected companies provide various integrated services in supporting the oil and gas industry as one of their core businesses. These services include providing offshore support vessels, offshore construction and installation, offshore engineering, offshore fabrication, hook up and commissioning, ship building, ship repair, port services, berthing and towing services and other oil and gas activities. The corporate governance attributes and financial performance of publicly listed oil and gas companies in Malaysia were examined over a five-year period from 2007 to 2011; 2007 was chosen because it marked significant changes in the MCCG

<sup>3</sup> Linear programming (LP) used to construct a non-parametric piece-wise surface over the data.

that highlighted the importance of corporate governance and disclosure requirements. The 2007 to 2011 data is expected to represent the governance situation after the implementation of the amended version of MCCG, which was introduced in 2007.

### Measurement of Scales

**Table 1: Operationalisation of Research Variables**

Variables	Proxies	Codes	Explanation	Reference
Input	Board Composition	BODCOM	Number of independent directors divided by total number of directors on the board	Hassan and Butt (2009), Wen et al. (2002).
	Board Size	BSIZE	Total number of directors on the board	Dedman (2000), Wen et al. (2002), Hassan and Butt (2009)
	Independence of Nomination Committee	NOMCOM	Proportion of independent directors in the nomination committee	Gillan et al., (2007).
Output	Return on Equity	ROE	Net income/average common stockholders' equity	Abdullah (2004)
	Return on Assets	ROA	Net income/average assets	Abdullah (2004)
	Earnings Per Share	EPS	Net income/weighted average common for shares	Abdullah (2004)
Sub-Group	Company Size	SIZE	Natural logarithm of total assets	Warfield et al. (1995)
	CEO/Chairman Duality	DUAL	Binary variable coded as '1' when a person serves as both CEO and BOD chairman (i.e. those employing CEO duality) and as '0' when otherwise.	Abdullah (2004), Al-Matari, et al. (2012)
	Risk Management Committee	RMCOM	Binary variable coded as '1' if a risk management committee exists and as '0' if otherwise.	Gillan et al., (2007)

## RESULTS AND DISCUSSION

### Descriptive Statistics

The input variables in the efficiency study were established mainly by the number of independent directors on the board and its related estimation, whereas the output variables were covered by several financial ratios that exhibit the health of the financial performance of oil and gas companies in Malaysia. The output variables included the income of the companies and the benefit to investors as they were concerned with the considerations of the investors in making investment decisions. The efficiency score generated was between zero and one, with a higher score indicating greater efficiency by the increase in output variables. The summary statistics of the OTE, PTE and SE of oil and gas companies are shown in Table 2, and are arranged by year and according to sub-group.

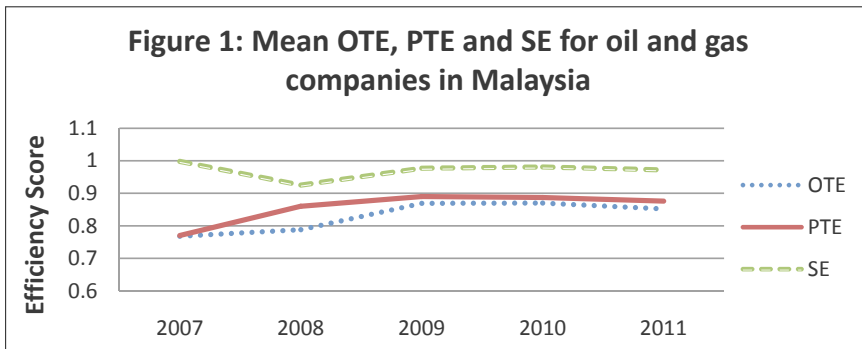
**Table 2: Summary Statistics of OTE, PTE and SE in Oil and Gas Companies by Year and Sub-group**

Year	OTE	PTE	SE		OTE	PTE	SE
2007	0.768	0.770	0.998	Sub-Group			
2008	0.788	0.860	0.925	Without RMCOM	0.840	0.867	0.970
2009	0.869	0.890	0.977	With RMCOM	0.796	0.824	0.945
2010	0.870	0.887	0.981	CEO Separation	0.806	0.835	0.961
2011	0.852	0.876	0.972	CEO Duality	0.909	0.933	0.972
Mean	0.829	0.857	0.971				
				Small Firm Size	0.833	0.856	0.977
SE	0.013	0.013	0.006	Large Firm Size	0.808	0.863	0.939
Median	0.83	0.91	0.998				
Mode	1	1	1				
SD	0.154	0.154	0.072				
Sample Variance	0.024	0.024	0.005				
Min	0.492	0.492	0.579				
Max	1	1	1				
No. Firm	140	140	140				

(Source: Data stream and annual report)

Table 2 shows that the mean efficiency scores for each year from 2007 to 2011 are very stable and do not fluctuate significantly because the corporate governance elements included as input variables were stable throughout the sample period, and financial performance for those years were also relatively constant. The standard deviation (SD) and variance of OTE indicates that OTE did not vary significantly across the study period among sample companies. The consistency of the efficiency scores for OTE, PTE and SE shows that inefficient management performance of the industry over the study period was mitigated and consistent. The number of companies involved in the study was 140. Another parameter (SE) measures the departure between the efficiency of a company under CRS (OTE) and VRS (PTE) technology assumptions (Uri, 2001).

For example, PTE is measured when the scale size of DMU is controlled. A larger divergence between OTE and PTE results in a lower value of SE, suggesting an adverse effect of scale size on productivity. Conversely, when OTE is equal to PTE, SE is equal to one, indicating that scale size had no adverse effect on productivity. The SE score for the mean across the study period is higher than the OTE and PTE, which shows that the divergence between the OTE and PTE is at a lower level. However, the two types of efficiency scores are very close to the value of one, implying that that corporate governance is closely correlated with financial performance. This finding indirectly shows that independent directors, as the measurement of corporate governance in this study, played a significant role in financial performance and the benefits of investors in view of the efficiency score.



The trends for OTE, PTE and SE for each year are shown in Figure 1. The fluctuations in the three efficiency estimations are similar except for the efficiency score during the financial crisis in 2008, when the two patterns display an obviously inverse direction of movement as the SE dropped and PTE increased. During a financial crisis, companies with larger firm size were exposed to higher risks and greater changes than smaller size firms because larger-sized firms were more inefficient than smaller size firms as the result of the response to greater uncertainty. Conversely, the managerial efficiency (PTE) contribution by corporate governance increased in 2008, which indicates that good corporate governance managed to maintain efficiency levels and coped better with an uncertain environment. The second part of Table 3 demonstrates the mean efficiency score for each sub-group.

The average scores of OTE, PTE and SE for companies without RMCOM are higher than those for companies with RMCOM, with percentages of 5.48%, 5.21% and 2.69%, respectively. Companies that practise CEA/chairman duality have higher mean efficiency score than companies that practise CEO/chairman separation, the difference is greater and almost double that of RMCOM, which indicates that CEO/chairman separation/non-separation is almost double the difference of the presence or absence of RMCOM. The differences in the percentages for OTE, PTE and SE in the sub-group of CEO/Chairman duality and separation are 12.77%, 11.73% and 1.14%, respectively.

The efficiency of scale does not have a significant influence, based on whether separate persons are in charge of the top management. The OTE and SE of companies with smaller firm size are higher by 3.09% and 4.04%, respectively, compared to companies with larger firm size. However, companies with larger firm size have higher efficiency score for PTE, indicating that large-sized firms are more efficient if the calculation of OTE is permitted without the SE effect. Overall, the mean efficiency score shows that companies without RMCOM, practising CEA/chairman duality and have smaller firm size were operating with more managerial efficiency in controlling costs and have been operating at the right scale of operation compared to others.

**Table 3: Difference in Mean Efficiency Scores According to Particular Sub-groups**

<b>CEO/Chairman Duality</b>						
		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Mean OTE	Between Groups	0.248	1	0.248	11.192**	0.001
	Within Groups	3.035	137	0.022		
	Total	3.283	138			
Mean PTE	Between Groups	0.227	1	0.227	10.205**	0.002
	Within Groups	3.051	137	0.022		
	Total	3.278	138			
Mean SE	Between Groups	0.003	1	0.003	0.239	0.625
	Within Groups	1.645	138	0.012		
	Total	1.648	139			

<b>Risk Management Committee</b>						
		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Mean OTE	Between Groups	0.054	1	0.054	2.275	0.134
	Within Groups	3.229	137	0.024		
	Total	3.283	138			
Mean PTE	Between Groups	0.052	1	0.052	2.199	0.140
	Within Groups	3.227	137	0.024		
	Total	3.278	138			
Mean SE	Between Groups	0.019	1	0.019	1.583	0.210
	Within Groups	1.630	138	0.012		
	Total	1.648	139			

<b>Firm Size</b>						
		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Mean PTE	Between Groups	0.012	1	0.012	0.499	0.481
	Within Groups	3.298	138	0.024		
	Total	3.310	139			
Mean OTE	Between Groups	0.001	1	0.001	0.046	0.830
	Within Groups	3.290	138	0.024		
	Total	3.291	139			
Mean SE	Between Groups	0.027	1	0.027	5.471**	0.021
	Within Groups	0.685	138	0.005		
	Total	0.713	139			

(Source: Data stream and annual reports. Note: df stands for degrees of freedom. \*The mean difference is significant at the 0.01 level. \*\*The mean difference is significant at the 0.05 level.)

The decomposition of the overall efficiency into PTE and SE suggests that other inefficiencies could be attributed to pure technical inefficiency rather than scale inefficiency. In contrast, the inefficiency of companies that practise CEO/chairman separation and with RMCOM could be attributed to scale rather than pure technical inefficiency, indicating that the efficiency levels of these companies increase with the scale of operation. A relatively low PTE score suggests that companies have pure technical inefficiency and are faced with a worse corporate governance level. Therefore, the top management of these companies should rearrange their structure and the number of directors on the board to improve the corporate governance level further.

## **FINDINGS**

F-statistic (ANOVA) was employed to examine the difference in mean efficiency scores according to the sub-groups in this study, which cover firm size, risk management committee and CEO/chairman duality. For this purpose, the mean efficiency score for each company was computed over the study period, and then F-statistics were estimated using the mean efficiency scores. The ANOVA and OTE, PTE and SE results for each of the sub-groups are shown in Table 3. The results for companies with risk management committees indicate that all mean efficiency scores are not significant. Thus, oil and gas companies with risk management committees do not perform significantly differently compared to companies with no risk management committees. In examining CEO/chairman duality, OTE and PTE results are significant at the 5% confidence level. However, SE for this sub-group exhibits no statistically significant difference. In terms of firm size, the mean efficiency score of SE was found to have a significant difference. Conversely, PTE and OTE do not indicate evidence of a statistically significant difference in the mean efficiency scores.

## **CONCLUSION**

The purpose of this study was to increase understanding of the technical efficiency of oil and gas companies in Malaysia over the period from 2007 to 2011 by employing a non-parametric approach, namely, DEA.

The study results indicate that the mean efficiency scores of firm size and CEO/chairman duality do not display statistically significant differences in generating better financial performance. From the summary of statistics, it is possible for companies in the oil and gas industry practising CEO/chairman duality to perform better and work with more efficiency than companies exercising CEO/chairman separation. The findings of this study can be explained by the uniqueness of the oil and gas industry, which is facing resource scarcity and operates under environmentally dynamic circumstances. Therefore, a quick response from the same person holding both CEO and chairman positions might help in providing an immediate solution. The other evidence provided in this study indicates that companies with a smaller firm size manage to work more efficiently in using corporate governance and in generating financial performance. This finding matches those in existing literature, which shows that good quality corporate governance is more difficult to maintain in a company with larger firm size than in a company with smaller firm size because of the complex nature of the organisation.

## REFERENCES

- Avkiran, N. K. (2001). Investigating technical and scale efficiencies of Australian Universities through data envelopment analysis. *Socio-Economic Planning Sciences*, 35 (1), pp. 57–80.
- Banker, R. D., Charnes, A. W., & Cooper, W. (1984). Some models for estimating technical and scale inefficiencies in data envelopment analysis. *Management Science*, 30(9), pp. 1078–1092.
- Bhagat, S. & Bolton, B. (2008). Corporate governance and firm performance. *Journal of Corporate Finance*, 12, pp. 257-273.
- Carapeto, M., Lasfer, M. & Machera, K. (2005). Does duality destroy value? Working paper. Retrieved on January 24, 2013 from [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=686707](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=686707).
- Charnes, A., Cooper, W. W., & Rhodes, E. (1978). Measuring the efficiency of decision making units. *European Journal of Operational Research*, 2 (2), pp. 429–444.



- Cooper, W. W., Seiford, L. M., & Tone, K. (2007). *Data envelopment analysis* (2nd Ed.). New York: Springer.
- Dar L.A., Nassem M.A. & Rehman R.U. (2011). Corporate governance and firm performance a case study of Pakistan Oil and Gas Companies listed in Karachi Stock Exchange. *Global Journal of Management and Business Research*, 1, pp. 8.
- Gompers, P.A., Ishii, J.L. & Metrick, A. (2003). Corporate governance and equity prices. *Quarterly Journal of Economics*. 118(1), pp. 107-155.
- Ho, S.M. & Wong, K.S. (2001). A study on the relationship between corporate governance structure and the extent of voluntary disclosure. *Journal of International Accounting, Auditing & Taxation*, 10, pp. 139-56.
- Jensen, M.C. & Meckling, W. H. (1976). Theory of the firm: managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), pp. 305-360.
- Johari, N. H., Saleh, N.M., Jaffar, R. & Hassan, M.S. (2008). The influence of board independence, competency on earnings management in Malaysia. *International Journal of Economics and Management*, 2(2), pp. 281-306.
- Khalid, N.(2012). Potential in shipping. Retrieved on February 24, 2013 from <http://thestar.com.my/maritime/story.asp?file=/2012/9/3/maritime/1195422&sec=maritime>.
- McCord, C. (2002). The assessment: corporate governance and corporate control. *Oxford Review of Economic Policy*, 8 (3).
- Mokhtar S.M., Sori, Z.M., Ali, M., Hamid, A., Abidin,Z.Z., Nasir, A.Z., Yaacob, A.S., Mustafa, H., Daud,Z.M. & Muhamad, S. (2009). Corporate Governance Practices and Firms Performance: The Malaysian Case. *Journal of Money, Investment and Banking*, 11, pp. 45-59.

- Ong T.S., & Lee S. Y. (2013). Board Composition, CEO Duality and Firm Performance: Malaysian Plantation Sector. *Pertanika*, 20 (2): pp. 85-99.
- Ramasamy, B., Ong, D. & Yeung, M.C.H. (2005). Firm size, ownership and performance in the Malaysian palm oil industry. *Asian Academy of Journal Management of Accounting and Finance*, 1, pp. 81-104.
- Syriopoulos, T. & Theotokas, I. (2007). Value creation through corporate destruction?
- Tufano, P. (1996). Who Manages Risk? An empirical examination of risk management practices in the gold mining industry. *The Journal of Finance*, 51 (4), pp. 1097-1137.
- Uri, N. D. (2001). The effect of incentive regulation on productive efficiency in telecommunications. *Journal of Policy Modelling*, 23 (8), pp. 825–846.
- Teh B.H., Azbajjani, S., & Ong T.S. (2012). Board of Directors and Capital Structure: Evidence from Leading Malaysian Companies. *Asian Social Science*, 8 (3), pp. 123-136.
- Walker, D. (2009). A review of corporate governance in UK banks and other financial industry entities: Final recommendations. Retrieved on November 3, 2012 from [http://www.hm-treasury.gov.uk/d/walker\\_review\\_261109.pdf](http://www.hm-treasury.gov.uk/d/walker_review_261109.pdf)
- Yang, J.-C. (2006). The efficiency of SMEs in the global market: Measuring the Korean performance. *Journal of Policy Modelling*, 28 (8), pp. 861–876.
- Yatim, (2010). Board structures and the establishment of a risk management committee by Malaysian listed firms. *Journal of Management and Governance*, 14 (1), pp. 17-36.