



The Effects of Ownership and Corporate Governance Reforms on Efficiency of Privatized Companies in Kenya

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ABSTRACT

This study investigated the effects of ownership and corporate governance reforms on efficiency of privatized companies in Kenya for the period 2007-2013. Data was extracted from financial reports. A unit root test examined stationarity of data. A fixed effects (FE) regression model with a robust standard error option was used to control for firm specific effects which could bias results. The results indicate government ownership has a negative effect on cost and technical efficiency. Local institutional investors influence technical efficiency positively. Large individual shareholders have a positive influence on cost efficiency while dispersed ownership influence cost efficiency negatively. Both non-executive and women directors influence cost efficiency positively. This study recommends further reduction of state and dispersed ownership to pass more ownership and control to institutional investors. Diversity in corporate boards should be enhanced to enable firms to attract managerial and technical expertise from the non-executive and women directors.

Keywords: Privatization, State Owned Enterprises, Efficiency

JEL Classifications: G32, H21

1. INTRODUCTION

The main economic rationalization of privatization is the belief that private ownership is more efficient and productive than state ownership. Several theories outline the challenges that the state faces in managing business enterprises and the efficiency gains that are likely to emerge from the transfer of ownership and control to private investors. The property rights theory asserts that public ownership is inefficient as the property rights are not defined which reduces incentives to perform as rewards and costs are not directly conveyed to individuals (Alchian and Demetz, 1973). The agency theory infers that the wide separation between ownership and control gives managers opportunities to pursue their own interests more than that of an organization. The public choice theory indicates that public enterprises are largely used to advance the interests of politicians leading into conflicting objectives (Boycko et al., 1996). Private ownership is considered to be more efficient due focus on profit objectives and rights to income which creates incentives to monitor managers (Vickers and Yarrow, 1991; Shleifer and Vishny, 1997). Accordingly, any

government aiming to achieve efficiency in commercial enterprises must delegate production and managerial decision making to private investors and corporate boards.

The emerging ownership structure of privatized firms however consists of different types of owners who may influence performance in diverse ways. Privatized companies are also expected to restructure corporate boards to conform to the best governance practices. The corporate governance guidelines advocate for a small board of diverse of skills and have majority of outside directors (OECD, 2004; CMA, 2002). However, the governance reforms adopted by privatized firms are often applied across diverse firms in different ways. The main interest of scholars and governments is to know whether the ownership and governance systems emerging following privatization influence the efficiency. The existing empirical studies however use diverse methodological approaches and results documented are inconsistent. Some studies compare the pre and post privatization performance of corporate entities using sales per employee and output as efficiency indicators. Most studies find that efficiency

improved after privatization (Megginson et al., 1994; Boubakri and Cosset, 1998). However, other studies found that efficiency measured by total sales decreased in privatized firms (Boubakri and Cosset, 1999; Omran, 2004).

A different line of inquiry examines the effects of different types of public and private shareholders on efficiency but also yield conflicting results. Some studies find that state ownership influences efficiency negatively (Lin et al., 2009; Yildirim and Philippatos, 2003). However, Zelenyuk and Zheka (2006) found that the state had a positive influence on efficiency. Some studies found that foreign ownership was more efficient than domestic ownership (Ochi and Yosra, 2012; Baruník and Šoták, 2010). However, Yiwei and Marton (2011) found that foreign owned banks had a lower cost efficiency compared to state owned banks. A different line of studies focuses on the effects of corporate governance on firm efficiency. Some studies found that board size had a negative effect on efficiency (Agoraki et al., 2009; María and Sánchez, 2010). Other studies find board size influences efficiency positively (Bozec and Dia, 2007; Tanna et al., 2009). Some studies found that the non-executive directors (NEDs) influence efficiency positively (Tanna et al., 2009; María and Sánchez, 2010). However, other studies found no significant relationships (Agoraki et al., 2009; Pi and Timme, 1993). The three lines of inquiry are inadequate in explaining the overall effects of reforms on efficiency as they are conducted separately and the variables vary.

In Kenya, several policy papers indicate that privatization was mainly adopted as a key government policy to address operational inefficiency and poor governance system in State Owned Enterprises (SOEs) (GoK, 1992; GoK, 2005). However the influence of ownership and governance reforms on efficiency of privatized firms has not been fully investigated. Most of the studies conducted in Kenya compare the before and after privatization performance using the accounting based ratios (Makokha, 2013; Yaw and Toroitich, 2005). These studies do not capture efficiency which is a core objective of privatization. A number of studies also examine firm efficiency but do not focus on privatized companies (Kamau, 2011; Nasieku et al., 2013; Sifunjo, et al., 2014). This study is different from previous research as it examines the combined effects of ownership and corporate governance reforms following privatization in a single regression model. The study also applies the stochastic frontier analysis (SFA) which involves computing efficiency scores using the input and output approach. The SFA is considered most superior in computing efficiency scores as it decomposes the stochastic term into an inefficiency component and random error (Yusof et al., 2010). Two concepts of efficiency are also used in this study to capture key dimensions of firm operational efficiency. The cost efficiency estimates how close a firm's actual costs are to the costs of a best-practice firm and therefore reflects managerial ability to drive down production costs (Leibenstein, 1966). Technical efficiency introduced by Farrell (1957) measures the effectiveness by which a given set of inputs is used to produce an output. The study also uses panel data and employs contemporary econometric approaches to address potential biases which could be caused by non-stationarity, heteroskedasticity and contemporaneous correlations in data

values. The paper is divided into five sections. Section 1 presents the introduction, 2 literature review, 3 the methodology while section 4 focuses on results and discussion. Section 5 presents the conclusion and policy recommendations derived from this study.

2. LITERATURE REVIEW

The theoretical perspectives supporting privatization focuses on the weakness of the state in managing business enterprises in comparison to private ownership. The agency theory focuses on conflict of interests between the owners and the agents due to separation between ownership and managerial control. The theory developed by Jensen and Meckling (1976) asserts that the wide separation gives managers opportunities to pursue private interests rather than that of an organization. The divergence in private firms is reduced as the owners have more income and decision making rights. The existence of a market for property rights also enables the shareholders in private entities to sell their ownership if they are not satisfied with managerial performance. Privatization is therefore expected to reduce conflict of interests between managers and shareholders in privatized companies by passing control and decision making to private investors and corporate boards.

The central argument of the property rights theory is that public ownership impedes allocation of property rights which creates monitoring problems and reduces performance incentives (Alchian and Demsetz, 1973). The state is also considered to be inefficient due to focus on both welfare and economic objectives (Boycko et al., 1996). Operational inefficiencies in production are also considered substantial in SOEs due to lack of appropriate incentives to induce cost minimization, the lack of modern production technologies. Their reliance on government funding means that the discipline enforced by the money and capital markets on private companies does not affect them. Privatization is therefore expected enhance efficiency by assigning property rights to shareholders and passing ownership and decision making to private investors and corporate boards. Privatized companies are also expected to utilize their resources more efficiently following the reduction of government subsidies and the demand of returns by shareholders. The public choice theory takes the bureaucratic approach and its main proposition is that, politicians and bureaucrats are motivated by self-interest and therefore use public enterprises to advance private interests such as maximization of votes and employment (Tullock, 1965). Accordingly, pervasive involvement of the state and politicians in the management of commercial enterprises imposes welfare and political objectives on SOEs which is detrimental to efficiency and profitability. Boycko et al. (1996) proposed a model of privatization within the framework of public choice theory. The model suggests that privatization would lead to effective restructuring of SOEs producing inefficiently, only if both cash flow rights and control rights pass from the government into private investors. This would make it difficult for the government to finance to produce at inefficient levels by offering them operating subsidies.

The resource based theory focuses resources as a critical factor for a firm to have a competitive advantage. Barney (1991) defines the resources sought by firms to improve performance to include

technical expertise, managerial skills and information essential in detecting and responding to market opportunities or threats. Operational inefficiencies are considered substantial in public enterprises due to lack of managerial skills, technical expertise and investment funds to modernize production technologies. Privatization is expected to change ownership structure and corporate governance of SOEs to help firms attract resources needed to improve efficiency. Accordingly, institutional shareholders are expected to enhance efficiency as they have good monitoring capabilities and professional expertise focus on profits. Corporate boards are also likely to improve efficiency by enhancing managerial supervision and bringing managerial and technical expertise crucial to firm performance.

Numerous studies examine the theoretical propositions of superiority of private ownership over public ownership using different empirical approaches. One line of study compares the before and after privatization performance used indicators such as output, sales per employee and output. Using this approach, Megginson et al. (1994) examined the efficiency of privatized companies in a sample of 61 firms drawn from 18 counties and found that the average net income efficiency increased by 26% while output improved by 25%. La Porta and López-de-Silanes (1999) examined the efficiency of privatized firms in Mexico and found that cost per unit decreased by 21.49% while output increased by 54.3%. In contrast, Boubakri and Cosset (1999) found average sales to total assets decreased by 1% while output decreased by 5% in privatized companies drawn from 5 African countries. In Malaysia, Sun and Tong (2002) found that output increased by 112% following privatization. In contrast, Omran (2004) found that output decreased from 0.962 to 0.940 in privatized enterprises while surprisingly, the mean sales in SOEs increased from 1.06 to 1.11. Kamaruddin and Abokareh (2012) used a different approach and examined the technical efficiency in Libyan privatized firms in manufacturing sector using the data envelopment analysis (DEA) technique. The study found that technical efficiency increased from 49.5% to 62.9% after privatization.

A different line of studies compares efficiency of firms under different types of private shareholders and state ownership. Following this approach, Majumdar (1998) using the DEA technique evaluated performance differences between government owned, mixed sector and private sector enterprises in India. The study found that SOEs were less efficient than mixed and private enterprises. In Malawi, Chirwa (2001) compared the technical efficiency of six privatized enterprises, three SOEs and six private enterprises in the manufacturing sector using DEA approach. The results indicate that privatized companies had a higher technical efficiency compared to SOEs and private enterprises. Yildirim and Philippatos (2003) examined the cost efficiency of 12 European banks and found that foreign banks were more cost efficient than domestic, private and state-owned banks. Zelenyuk and Zhaka (2006) also using the DEA approach focused on efficiency of firms in Ukraine and found that the state ownership and surprisingly, foreign ownership had a negative effect on efficiency. Destefanis and Sena (2007) examined the influence of ownership on the technical efficiency of Italian manufacturing firms using DEA

technique and found that large shareholders had a positive relationship. Aikaeli (2008) investigated efficiency of commercial banks in Tanzania, using DEA technique to derive efficiency values. The study found that foreign banks ranked highest in terms of technical inefficiencies.

Using the SFA approach, Baruník and Soták (2010) examined the efficiency of 44 Czech and 21 Slovak banks for the period 1996-2005 and found that in both countries foreign-owned banks were more cost efficient than local private banks. The state owned banks were also less cost efficient compared to domestic private banks. In Indonesian, Tessa and Ricky (2011) examined the technical efficiency of the banks and found that banks could improve their technical efficiency by 10.5%. Surprisingly, state-owned banks had a perfect efficiency and were more efficient compared to the private banks. Yiwei and Marton (2011) also examined the cost efficiency of banking sectors in Europe and found that the average bank cost efficiency was 68.59%. Foreign banks were also associated with lower cost efficiency compared to state and domestic private banks. More recently, Ochi and Yosra (2012) examined the impact of ownership on cost efficiency of Tunisian banks and found that private banks were more efficient than public banks. Banks with majority foreign ownership were found to be more efficient than domestic owned banks. Zawadi (2013) analyzed the efficiency of regional and small commercial banks in Tanzania from 2006 to 2012 using DEA approach and found that the overall mean efficiency of banks was 90.4%. This was an indicator that banks could have reduced the inputs by 9.6% without affecting the level of output.

A different line of studies examine the influence of corporate governance using cost and technical efficiency indicators. Bozec and Dia (2007) analyzed the effectiveness of the board on Canadian SOEs and found that board size and NEDs were positively related to technical efficiency only when SOEs are exposed to market discipline. Tanna et al. (2009) examine the relationship between board structure and the efficiency of 17 banks in Britain and found an insignificant relationship between board size and efficiency while board composition, had a positive impact. In a similar study, Agoraki et al. (2009) found that board size had a negative influence on cost and profit efficiency in European bank and that board composition had an insignificant effect on cost efficiency. In Spain, María and Sánchez (2010) found that technical efficiency increased with a diverse board while board size negatively affected cost and profit efficiency. There relatively few studies that used a single regression model to examine the combined effects of ownership structure and corporate governance on firm efficiency. Su and Dai (2012) examined the impact of ownership, corporate governance on efficiency of listed firms in China and found that state ownership had a negative effect on efficiency while large private firms improved efficiency. The study found that NEDs had no significant influence on efficiency. In Nepal, Ravi and Hovey (2013) examined the impact of corporate governance on efficiency of commercial banks and found that a larger corporate boards and lower proportion of institutional ownership increased efficiency in the commercial banks.

In Kenya, there are a number of studies which examine the efficiency of corporate entities. Kamau (2011) investigated

efficiency and productivity of banks in the post liberalization period using the DEA technique to compute efficiency scores. The study found that foreign banks seem were most efficient followed by local private and local public banks. Nasieku (2013) examined the efficiency of Kenyan commercial banks between 2001 and 2011 and found that although all banks had a high efficiency score, large banks had a higher technological efficiency compared to medium and small banks. Sifunjo, et al. (2014) examined the X-efficiency of commercial banks in Kenya. The study found that X-efficiency was 18% and that inefficiency in large banks was more persistent than in small bank inefficiency as it was 23%. It is apparent that the empirical studies use diverse methodologies and independent and dependent variables. The studies also generate inconsistent results. Some studies find a positive relationship between ownership structures, corporate governance variables while others find a negative or no significant relationship. Most of studies examining firm efficiency also largely focus on the banking sector.

3. METHODOLOGY

This study used a balanced panel data with 8 privatized firms for the period 2007-2013. The companies purposely selected were privatized by sale of shares, listed at the Nairobi stock exchange and the Government of Kenya (GoK) had retained some ownership. The study was also confined to firms where majority of the shares were owned by the state before privatization and hence, fit the definition of the SOEs under the State Corporations Act (CAP 446). The firms had published annual reports and by using the criteria, eight firms were selected. The ownership and governance variables were extracted from annual reports of privatized companies obtained from CMA. The cost efficiency and technical efficiency values were computed using the SFA version 4.1c. The input variables used were: Cost of sales/raw materials, total expenses (financial and operating) and total assets while output was measured by total sales. Data analysis was done using Stata software version 11. The Levin, Lin and Chu (LLC) test was used to examine whether the variables had unit roots which may cause invalid results. The FE was used to control for firm individual characteristics which could influence efficiency. The following regression equations were used.

$$CEFF_{it} = \alpha_0 + \alpha_1 GOVT_{it} + \alpha_2 INST_{it} + \alpha_3 FORI_{it} + \alpha_4 LISH_{it} + \alpha_5 DISP_{it} + \alpha_6 BSIZE_{it} + \alpha_7 COMP_{it} + \alpha_8 GEND_{it} + \alpha_9 \lnFSIZE_{it} + \alpha_{10} LEV_{it} + \alpha_{11} INVE_{it} + \varepsilon_{it} \quad (1)$$

$$TEFF_{it} = \alpha_0 + \alpha_1 GOVT_{it} + \alpha_2 INST_{it} + \alpha_3 FORI_{it} + \alpha_4 LISH_{it} + \alpha_5 DISP_{it} + \alpha_6 BSIZE_{it} + \alpha_7 COMP_{it} + \alpha_8 GEND_{it} + \alpha_9 \lnFSIZE_{it} + \alpha_{10} LEV_{it} + \alpha_{11} INVE_{it} + \varepsilon_{it} \quad (2)$$

The variables and coefficients used in the regression models are measured as follows:

CEFF = Cost efficiency scores computed using the SFA technique
TEFF = Technical efficiency scores computed using the SFA technique

α = Intercept or constant

α_1 = Coefficients for each of the independent variables to be

estimated: $i = 1-11$

i = Individual company

t = Time (year)

GOVT = Percentage of shareholding held by government in firm i in period t

INST = Percentage shares owned by local institutions in firm i , in period t .

FORI = Percentage shares owned by foreign companies in firm i , in period t .

LISH = Percentage of shares held by large individual shareholders in firm i in period t .

DISP = Percentage of shares held by dispersed shareholders in firm i , in period t .

BSIZE = Total number of directors on the corporate board

COMP = Percentage of NEDs on the corporate board

GEND = Percentage of female directors in the corporate board

\lnFSIZE = The log of total assets

LEV = Total liabilities/total assets

INVE = Capital expenditure/total assets

ε_{it} = Error term

4. RESULTS AND DISCUSSION

4.1. The Descriptive Statistics

The descriptive statistics show that the government is the main shareholder in privatized firms with an average of 41% ownership followed by dispersed shareholders with 39%, local institutions with 10%, foreign institutional investors with 9% and 1% by large individual investors. The results imply that government has the highest capacity in influencing decision making in privatized companies it can appoint nearly a half of members of corporate boards. From the property rights and agency theory perspective, companies with large state ownership are likely to experience difficulties in supervision of managers due to the wide separation between ownership and control. It is also apparent that a large size of ownership is held by dispersed companies. According to Berle and Means (1932) such companies are likely to experience agency problems as dispersed shareholders have no capacity to influence decision making in corporate entities. The average board size is 9.98 which is large compared to an average of 6.07 observed by Fauzi and Locke (2012) in New Zealand and 8.23 reported by Chaghadari (2011) in Malaysia and 7 documented by Ravi and Hovey (2013) in Nepal. The average percentage of NEDs in privatized firms is 86% which means that they have complied with requirement of having majority of board members from outside the organization. The percentage of women directors 18% which below the constitutional threshold of 30%.

The mean cost efficiency in privatized firms is 10% is an indicator that they can reduce costs by 90%. This means that output of privatized companies was not proportionate to the amount of inputs used. The technical efficiency in privatized firms is 43% which means that they can improve performance by 57% using the same resources. This is lower than to 47% reported by Kamau (2011) and 90.4% documented by Zawadi (2013). This study incorporated other important variables in the regression model that have been found in the empirical literature to have significant effect on financial performance. Firm size of privatized companies

expressed as the log of its assets is 17.87 which is higher than an average of 10.23 documented by La Porta and López-de-Silanes (1999) in Mexico. The leverage in privatized firms in Kenya is 62% which is lower compared to 66.26% observed by Boubakri and Cosset (1999). The percentage of investment in privatized firms in Kenya is 6.63% which is lower than the 7.9% reported by Boubakri and Cosset (1999) in privatized firms drawn from five different African countries.

4.2. Panel Unit Root Test

The following Table 1 presents a summary of the unit root test results. This study used the LLC test whose null hypothesis is that panels contain unit roots testing whether the P value is greater or <0.05. A higher value than 0.05 indicates that a variable has unit root and therefore is not stationary.

The unit root results for technical efficiency, institutional, foreign, dispersed, board size, board composition, leverage and investment shows that the P-values calculated are less than the critical value of 0.05. This means that the variables were stationary in their first level form. The P-values for cost efficiency, government, large individual, gender and firm size were more than the critical value of 0.05 implying that they had unit roots. The variables were then subjected to a first level difference which involved creating a variable that reflects the difference in scores for one time period. Following this procedure, firm size, and large individual achieved stationarity and hence the differenced values were used in the regression models. The cost efficiency and government remained non stationary and could not be differenced further as the unit root test requires a minimum of six panels. Their P-values also remain constant which means the series is not mean-reverting. The cost efficiency and technical efficiency were therefore used in the regression models in their original form. The unit root tests show no co-relationship among differenced values and hence the co-integration test was not necessary.

4.3. The Effects of Ownership Structure and Corporate Governance on Efficiency of Privatized Companies

The following Table 2 presents the results of regression models examining the influence of ownership structure, corporate governance on efficiency of privatized companies. The table has 2 Panels. Panel A presents the regression results of the influence of ownership structure, and corporate governance on the cost

efficiency while Panel B shows the results on technical efficiency. The results include the coefficients of individual variables, robust standard error estimates; the coefficient of determination, R²; F-statistics and the t-statistics.

4.3.1. The Influence of ownership structure and corporate governance on cost efficiency of privatized companies

Panel A of Table 2 presents the results of the regression model on the effects of ownership structure and corporate governance on cost efficiency of privatized companies. An FE regression model with a robust standard error option was used to controls for firm characteristics which may cause heteroscedasticity and contemporaneous correlations which could influence cost efficiency. The FE model eliminated foreign ownership as most of the values were not varying with time. Institutional ownership, board size and investment were also automatically eliminated from the model probably because they were not significant and also to take account of degrees of freedom. This is an indicator that not all the proposed variables were important in explaining the differences in technical efficiency in privatized companies. The model was also significant when board composition, leverage and firm size were lagged once. This indicates that the past values of NEDs, leverage and firm size, influence cost efficiency of privatized firms. The computed F value is 80.18 which is significant at 1% level. This means that the combined effect of ownership and corporate governance on the cost efficiency is significant. The coefficient of determination R² is 0.6469 indicating that 64.69% of variation in cost efficiency is explained by the model. The remaining variation of 35.31% is unexplained and attributed to other factors not included in the model.

The t-tests for individual coefficients indicate that government ownership has a negative and significant influence on cost efficiency at 1% level. These results are consistent to the property rights theory which views large government ownership as often characterized by underutilization of resources and failure to employ an input mix required for cost minimization. Operational inefficiencies could also be attributed to insufficient pressure on managers to minimize costs due as companies with large state ownership expect subsidies from state. Some reports also indicate that some privatized firms were still utilizing obsolete technologies, low-quality inputs (GoK, 2010). The cost inefficiency in firms with large state ownership may be attributed to pursuit of both profit and welfare goals. This study observes that the government has retained

Table 1: The results of the unit root test

Variable	I (0) Adjusted t	P value	I (1) Adjusted t	P value
Cost efficiency	781.6944	1.0000	98.3920	1.0000
Technical efficiency	-17.4472	0.0000		
Government	175.9886	1.0000	507.2046	1.0000
Institutional	-3.6325	0.0001		
Foreign	-1.9067	0.0283		
Large individual	-0.0949	0.4622	-2.9244	0.0017
Dispersed	-51.2902	0.0000		
Board size	-3.5133	0.0002		
Board composition	-4.9976	0.0000		
Gender	-0.0445	0.5178	-2.3497	0.0094
Firm size	1.0494	0.8530	-5.3204	0.0000
Leverage	-2.4433	0.0073		
Investment	-3.8166	0.0001		

Table 2: The effects of ownership structure and corporate governance on efficiency of privatized companies

Panel A: The effects of ownership structure and corporate governance on cost efficiency				
CEFF	Coefficient	Robust standard error	t	P value
Government	-0.00015***	0.0004	-3.71	0.008
Large individual	0.0012**	0.0005	2.80	0.026
Dispersed shareholders	0.0011***	0.0001	-6.70	0.000
Board composition (lag1)	0.0185*	0.0079	2.35	0.051
Gender	0.02828*	0.0119	2.36	0.051
Leverage (lag1)	0.0164**	0.0059	2.78	0.027
Firm size (lag1)	-0.0148***	0.0041	-3.52	0.010
Constant	0.01790***	0.0274	6.53	0.000
R ² =0.6469		F=80.18		P>F=0.0000

Panel B: The effects ownership structure and corporate governance on technical efficiency				
TEFF	Coefficient	Robust standard error	t	P value
Government	-0.0036**	0.0008	-3.71	0.002
Institutional	0.0029***	0.0005	5.79	0.001
Large individual	0.0034	0.0026	1.30	0.234
Board size (lag1)	-0.0005	0.0023	-0.21	0.838
Board composition	0.0287	0.0221	1.30	0.235
Gender	0.0099	0.0365	0.27	0.795
Firm size (lag1)	-0.0148**	0.0062	-2.37	0.050
Constant	0.5078***	0.0446	11.39	0.000
R ² =0.4430		F=576.48		P>F = 0.0000

***,**,*,* represent significance level at 10%, 5% and 1% respectively

over 60% ownership in some privatized companies which means that they operate largely under the state corporation Act (CAP446). From the public choice theoretical perspective, such firms could be addressing socio-economic and political interests which influence efficiency negatively. In the Kenyan context these socio-economic objectives include income and wealth redistribution, creation of employment, promotion of regions and production of goods and service at subsidized prices. The corporations may also be experiencing agency problems associated with large separation between ownership and control. These findings imply that the cost inefficiency associated with state ownership cannot be fully eliminated if the government does not pass substantial ownership and control to private investors and corporate boards. The results are consistent to studies which found that the government has a negative effect on inefficiency (Baruník and Soták 2010; Kamau, 2011; Zelenyuk and Zheka, 2006).

Surprisingly, the influence of large individual shareholders on cost efficiency is positive and significant at 5% level. This is inconsistent to the agency theory which views individual shareholders to have no capacity to monitor managers due to their small size of their shareholding. However, the findings may imply that some large individual who are among the top ten shareholders may influence cost efficiency positively as they may have some special decision making rights. The individual investors are also vocal in decisions that affect their investment which could influence the managers to reduce costs. The dispersed shareholders have a negative and significant effect on cost efficiency at 1% significance level. This was expected as they hold the second largest size of ownership with

a mean of 39% and yet they are not actively involved in decision making which could impact negatively on costs. The results may also imply that privatized companies with a large size of dispersed shareholders experience agency problems which could lead to cost inefficiencies.

The NEDs have a positive and a significant relationship with cost efficiency at 10% level of significance. This is an indicator that NEDs are a key determinant of cost efficiency. From the agency theory perspective, a large proportion of NEDs may exert pressure on managers to reduce operational costs. The results are supported by the resource based theory, which views NEDs to be crucial in bringing additional financial and technical expertise to a firm which could reduce operational costs. The findings are also consistent to studies which found that NEDs enhance efficiency (Tanna et al., 2009). Women directors have a positive significant effect on cost efficiency at 10% level. An significant relationship imply that women directors may have brought some skills or influenced decision making which led to efficient use of resources. The results are consistent to studies which found that women directors influence performance positively using other performance indicators (Campbell and Mínguez, 2008; Terjesen et al., 2015). Firm size as a control variable has a significant and negative effect on cost efficiency at 1% level. From the agency theory perspective, a negative effect may be attributed to bureaucracy and increased monitoring and bonding costs associated with large firms. As Himmelberg et al. (1999) argued, larger firms can be less efficient as they are more vulnerable to managerial discretion and misuse of resources. Leverage has a positive and a significant relationship with cost efficiency at 5% level. The results support the agency theory which recognizes debt as mechanism by banks to monitor managers. The results may imply the pressure from banks to repay loans may have put pressure on managers of privatized firms to utilize corporate resources more effectively in order to meet their obligations.

4.3.2. The relationship between technical efficiency, corporate governance and ownership structure

Panel B of Table 2 above presents the results of the FE regression model used with a robust standard error option. The model controls for firm characteristics which may cause heteroscedasticity and contemporaneous correlation in data values which may influence technical efficiency. The FE model also eliminated foreign ownership as most of the values were not varying with time. The Stata procedure also automatically eliminated dispersed shareholders, leverage and investment from the model probably because they were not significant and also to take account of degrees of freedom. The regression model was significant when the lagged values board size and firm size were used. This means that the past values of the variables influence technical efficiency. The computed F value is 576.48 and is significant at 1% level. The results imply that the combined effect of the ownership and corporate governance variables on the Tobin's Q is significant. The R² value is 0.4430 implying that the regression model explains 44.3% of variance in the technical efficiency of privatized firms.

The t-tests for individual coefficients show that government ownership has negative and significant relationship with technical

efficiency at 5% level. This finding is consistent with the property rights, public choice and the agency theories view state ownership as harmful to both cost and technical efficiency. The findings are consistent to studies which found that the state-ownership has a negative impact on efficiency (Lin et al., 2009; Zelenyuk and Zheka, 2006; Ochi and Yosra, 2012; Yiwei and Marton, 2011). The technical inefficiency in firms largely owned by the government could be attributed to lack of sufficient funding to modernize production technologies. The average investment in privatized firms in Kenya is 6.63% compared to 13% reported by Hennessy and Whited (2005). Firms with large state ownership could still be addressing some nonprofit objectives such as maintaining employment and producing goods at subsidized prizes. This may affect privatized companies where the government has retained more than 50% ownership. Privatized companies may still be operating inefficiently as some still turn to government to be bailed out in case of financial difficulties as they are still considered to be of national strategic interest. This means that they are not fully exposed to market discipline.

The local institutional shareholders have a positive and significant influence on technical efficiency at 1% level. The results confirm that local institutional investors have potential to stimulate technical efficiency which may come from enhanced monitoring, managerial skills and technology transfer to privatized companies. From a resource based theoretical perspective, local institutions may have brought in some managerial expertise and production technologies, as well as greater access to new markets which increase production. The results are consistent to studies which found a positive and significant relationship between institutional investors and technical efficiency (Su and Dai, 2012; Ravi and Hovey, 2013). Large individual shareholders have an insignificant impact on technical efficiency. The findings are concur with the agency theory which perceives individual shareholders to have no the capacity to influence performance due to small size of ownership (Jensen and Meckling, 1976). The descriptive statistics show that large individual hold 1% ownership in privatized companies which is considered to be too low to have any representation in corporate boards and consequently firm performance.

Board size has an insignificant relationship with technical efficiency. They results are consistent with those of Tanna, et al. (2009) who document insignificant relationship between board size and technical and cost efficiency. The insignificant results may imply that board members may not have the required skills to influence technical efficiency. Some studies indicate that efficiency of a firm is largely influenced by competition, skilled workforce technological capacity in transforming inputs at minimum costs into maximum profits (Sifunjo et al., 2014). It can therefore be argued that board size alone may therefore not be a significant driver of cost efficiency without consideration of managerial and technical expertise of the members. Board composition has an insignificant relationship with technical efficiency. This contradicts the agency theory perspective, which indicates that NEDs bring managerial and technical expertise to increase output. The findings are also inconsistent to previous studies which found that NEDs improve efficiency (Bozec and Dia, 2007; Tanna et al., 2009;

María and Sánchez, 2010). The insignificant results may imply the NEDs alone may not have the potential to enhance the technical efficiency. Leibenstein (1966) indicate that the key drivers of efficiency are competition, skilled labor and technology. These variables may not have been captured as the regression model explains 44.30% of variance in the technical efficiency.

Women directors have an insignificant relationship on technical efficiency. The findings are similar to those of Yasser (2014) who document insignificant relationship between women directors and firm performance. An insignificant effect means that gender alone is insufficient to influence performance unless they have the technical expertise and are adequately represented in corporate board to influence the decision making. Firm size has a negative and significant relationship with technical efficiency at 5% level. The results contrast the view that firm size increases productivity. The results imply that the benefits associated with large firm size may be cancelled out by managerial problems inherent in firms formerly owned by the state. Some reports indicate that some privatized firms were still were utilizing obsolete technologies, low-quality inputs and were addressing multiple objectives (GoK, 2010).

5. CONCLUSION AND RECOMMENDATIONS

The study investigated the effects of ownership and corporate governance on cost and technical efficiency of privatized companies. The efficiency scores were computed using the SFA input output oriented approach. A general remarkable observation on estimated efficiency scores is that privatized companies are both cost and technically inefficient. The results of the regression tests confirm that the combined ownership and corporate governance variables influence efficiency of privatized firms. Among individual variables, government ownership has a negative influence on both cost and technical efficiency. Large individual shareholders have a positive influence on cost efficiency while dispersed shareholders have a negative influence. The NEDs and women directors have a positive influence on cost efficiency. Local institutional shareholders have a positive influence on technical efficiency. In view of these findings, policies should be put in place to improve efficiency of privatized companies. This study recommends that government ownership and dispersed ownership should be reduced further to pass more ownership and control to institutional investors. The role of large individual investors should be enhanced as they have capacity to reduce costs. Diversity in corporate boards should be enhanced to attract managerial and technical expertise from NEDs and women directors.

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