

Effects of Privatization on Firms Financial and Operating Performance "Evidence from Jordan"

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ABSTRACT

This study evaluates the financial and operating performance of 43 privatized Jordanian firms, which were privatized during the period 1995-2006. The main objective of the study is to examine whether privatization does improve firms' performance, and whether that improvement differs according to various sub samples. For that purpose, a wide range of accounting performance measures are used as proxies of performance, and the mean performance is calculated for both pre- and post-privatization periods.

The empirical results of this study indicate that there is no significant increase in profitability after privatization at both full sample, as well as, sub samples level. However, the results showed that there is a significant increase in operating efficiency, capital expenditures and dividends achieved by all privatized firms following privatization. Conversely, there is a significant decrease in employment and liquidity for the privatized firms, while leverage has been decreased insignificantly following privatization. Finally, this study showed that firms' performance improvements were more preferable for the group of firms where government ownership exceeds 50% of the total firm before privatization, and for the group of firms with full privatization.

Keywords: Privatization, Financial Performance, Operating Performance, State-Owned Enterprise.

INTRODUCTION

Privatization is the incidence or the process of transferring ownership of business from the public sector (government) to the private sector (business) in a broad sense. The concept of privatization has started to become the most important issue for governments to implement; and therefore the most important area for both theoretical and empirical research. Most governments try to adopt this program with a concrete objective of increasing and enhancing the performance of their state-owned firms, and to limit their role and control on the fields of defense, security, offering basic services, as well as organizing and supervising the private sector.

The spread of privatization programs around the world during the past two decades has contributed to the debate on the economic and political merits of government versus private ownership.

Many researchers have studied this field, in order to investigate whether privatization programs act in consistent with previously set objectives. The theoretical

literature points to some benefits of privatization; researchers found that implementing privatization programs would lead, in most cases, to significant increase in profitability, operating efficiency, output, dividends, and capital expenditures. Where employment, and leverage would decline significantly following privatization. Which means in total that privatization yields significant performance improvement. (Ralijohn, 2003).

This study focuses on Jordan's privatization program, which was launched in 1995 and gained momentum as of 1997 to become one of the most successful privatization programs in the region, and a model to be followed, as acknowledged by the World Bank and other regional and international specialized agencies. (Privatization Newsletter, Issue No.10/2001).

IMPORTANCE OF THE STUDY

Many researchers have studied the benefits of privatization programs around the world, in order to determine whether and by how much privatization improves firm's performance. As Jordan moved toward this trend since the mid of nineties, and the continuous adoption of this program to privatize many state-owned

* Faculty of Business, University of Jordan, Amman, Jordan.
Received on 22/5/2009 and Accepted for Publication on 9/3/2010.

firms, it is important now at this phase to follow up these firms and to evaluate their performance in order to identify any significant improvement in their financial as well as operating performance.

Despite the fact that sufficient time has elapsed for implementing privatization process in Jordan, poor effort is spent in studying the consequences of such a program. Most of the studies related to this field was directed to a specific firm as a case study, and did not consider the entire economy. Moreover, these studies were directed toward quality and price related issues rather than financial and operating position of these firms, which mainly derived from their accounting data presented in their financial statements. Based on the above, this study contributes to the existing literature in the following ways:

1. This study provides the first empirical evidence of performance improvement for privatized firms in Jordan.
2. This study provides deep insights into the reality of privatization by considering new variables that assumed to be relevant to this event. These variables are government ownership percentage, sale percentage, and liquidity of the firm.

RESEARCH PROBLEM

The scope of this study limited to the following areas:

1. Examining the financial and operating performance of newly privatized Jordanian firms during the period 1995-2006, in order to determine whether privatization has a positive impact on firm performance.
2. Test for any performance changes of privatized firms that could vary according to the following variables: type of ownership structure, government ownership percentage, sale percentage, and the related sector during post-privatization period.

OBJECTIVES OF THE STUDY

This research seeks to achieve the following objectives:

1. Examine if privatization has a significant positive effect on the financial and operating performance of privatized firms in Jordan.
2. Investigate whether different ownership percentages

that government originally posses in these firms could yield different performance reactions during post-privatization period.

3. Identify the best percentage level of sale from government stakes in the privatized firms that is associated with the highest performance improvement after privatization.

LITERATURE REVIEW

Literature on privatization composed of variety of research fields such as management, marketing, public policy, and macroeconomics. Researchers extensively studied this field broadly, and showed positive and consistent results, with some differences related to the variation in the economy characteristics among different countries. Many of these studies examined the impact of privatization on firm performance as a significant indicator of the benefits of privatization, by comparing pre-versus-post privatization financial and accounting data. Several articles discussed the theory of privatization and tried to answer the question of why governments have embraced privatization programs, including those written by Boardman and Vining (1989), Vickers and Yarrow (1991), Laffont and Tirole (1993), Lopez-de- Salinas (1997), Nellis (2000), and Shirley and Walsh (2000). These authors examined the efficiency implications of government ownership and the movement from government ownership to privatization. The effect of privatization on productive efficiency is the focus of most of the empirical literature.

Examining how privatization affects firm performance by comparing pre-versus-post privatization data for companies privatized through public share offering, was first introduced by Megginson, Nash and Randenborgh (MNR) (1994), and most of the studies subsequent to this study used the same methodology, which is commonly referred to the Megginson, Nash and Randenborgh (MNR) methodology. They tested for the significance of median changes in ratio values for pre-versus-post privatization periods. They found economically and statistically significant post-privatization increases in output (real sale), operating efficiency, profitability, capital investment spending and dividend payment, as well as significant decrease in leverage. No evidence of employment declines after privatization, but significant changes in firm directors. Therefore, privatization does improve firm performance.

Further studies on privatization include the followings:

- Boubakri and Cosset (1998) used the MNR methodology for 79 companies from 21 developing countries and 32 industries over the period 1980-1992, their results were consistent with the Megginson *et al.* (1994), but performance improvements were generally even larger.
- D'Souza and Megginson (1999) examined offering terms, method of sale and ownership structure resulting from privatizing 78 companies, from 10 developing countries and 15 developed countries over the period of 1990-1994. They used the same methodology of MNR and employed binomial tests for percentage of firms changing as predicted. The results suggested that both restructuring and changes in corporate governance are important determinants of post-privatization performance.
- Boubakri *et al.* (2005) investigated the role of ownership structure and investor's protection in corporate governance using a sample of 170 firms from 26 developing countries during the period 1980-1997, and found that foreign and local institutional investors absorb much of the decrease in state ownership, while the average stake held by individuals is less important.
- Boubakri and Cosset (2002) examined pre-versus-post privatization performance of 16 African firms privatized during the period 1989-1996, the results showed an increase in capital spending but insignificant changes in profitability, efficiency, output and leverage.
- Ralijohn (2003) compared pre-versus-post privatization financial and accounting data of 71 companies from 17 developing countries during the period 1990-1999. The study showed significant increase in profitability, operating efficiency, output, and dividends. Capital expenditures increased significantly, employment declined significantly, and leverage decreased significantly following privatization.
- Megginson and Sutter (2006) surveyed the empirical studies that examined privatization effects in developing countries, and found that privatization yields improvements in the operating and financial performance of divested firms. Also, they found that post-privatization performance improvement using data from multiple non-transition economies tend to find stronger efficiency gains for firms in regulated industries, in firms that restructure operations after

privatization, and in countries providing greater amounts of shareholder protection.

STUDY HYPOTHESES

The hypotheses of the study are formulated on the form of null as follows:

First Hypothesis

H01: There is no significant difference of the financial and operating performance, measured by profitability ratios, operating efficiency ratios, capital expenditures ratios, employment level, leverage ratios, dividends (payout) ratios, and liquidity ratios, attributed to privatization.

Second Hypothesis

H02: There is no significant difference in post-privatization performance changes, attributed to the level of government ownership percentage in the privatized firm.

Third Hypothesis

H03: There is no significant difference in post-privatization performance changes attributed to the level of sale percentage from government ownership in the privatized firms.

DATA AND METHODOLOGY

Data

The data used for this study was related to Jordanian companies that had been privatized during the period 1995-2006, and had at least one year of both pre-and post-privatization useable financial data. This methodology is supported by many researchers on this field. Ralijohn (2004) considered firms that had at least one year pre- and post-privatization financial data when studying privatization outcomes in the developing countries. The objective is to investigate whether firm's performance has improved directly in the first year following privatization or needs sufficient time to recognize that improvement.

The population of this study is composed of all privatized firms in both industrial and service sectors during the period 1995-2006. Banking and insurance sectors are excluded due to their unique characteristics, economic nature and their different financial reporting, that could yield inconsistent results if they have been included within the data set. A list of privatized firms provided by

the Executive Privatization Commission consists of 14 independent companies, as well as 51 companies included within Jordan Investment Corporation (JIC). Therefore, the total population regarding this phenomenon in Jordan is amounting to 65 companies.

For some purposes, total final numbers of firms that constitute the final sample of the study is amounting to 43 firms; 26 firms are industrial firms, and 17 firms are service firms.

Furthermore, governments usually privatize most important and influential firms through stages in order to be able to track performance changes, and to assess privatization ability to accomplish the desired objectives

over short period. These firms are unique in nature and influence the national economy such as energy, communication networks and transportation. In Jordan, eight public enterprises were sold gradually to the private sector, which means that for these firms privatization transaction took place more than once. Since the objective of the study is to analyze the effect of privatization on firm's performance, and in order to avoid losing observations, the number of privatization transactions that executed is considered as separate observations. Therefore, the sample size is adjusted from 43 firms to 54 observations of privatization transactions. Table (1) presents total number of privatization transactions:

Table 1. Final Sample Composition (total number of observations)

Stages of privatization	One stage	Two stages	Three stages	Four stages	Total
Number of firms	35	6	1	1	43
Number of observations	35	12	3	4	54

Data Collection

Data included in the study were obtained from different sources. Financial statements of the firms were obtained directly from Companies Control Department, which is a division of the Ministry of Industry and Trade. Other non-financial information obtained from Amman Stock Exchange website (www.ase.com.jo). Executive Privatization Commission provided the needed information regarding privatization program in Jordan and related information. Further detailed information of all privatized companies was collected directly from Jordan Investment Corporation (JIC).

METHODOLOGY

The analysis conducted in this study seeks to determine whether privatization of State-Owned Enterprise (SOEs) in Jordan is truly desirable and lives up to the expectations of governments and development agencies for the performance of newly privatized firms. In particular, the study determines whether following privatization, the firms enhance their (1) profitability, (2) operating efficiency, (3) capital expenditures, (4) employment, (5) leverage, (6) payout, and (7) liquidity. The methodology employed in this study is the same common methodology of MNR that first studied the field of privatization, and then adopted by most subsequent researchers, in order to allow a constructive comparison between the results of these studies that constitute the empirical literature of the field of privatization.

This methodology compares the pre-and-post-privatization performance measures using the empirical proxies of performance that will be discussed broadly in the following section. First, the empirical proxies for each company over the privatization window are computed, which means three years before privatization and three years after privatization, the year of privatization (year 0) was excluded from our calculations because it represents both phases of public and private ownership. Then means of each variable are computed for each firm for the pre-privatization (years -3 to -1) and post-privatization (years +1 to +3) periods, which means that for each individual firm, the mean performance is calculated prior and after privatization.

However, it is important to note that companies are included in our sample as long as we had observations from at least one year for both before and after privatization periods (year -1 through year +1). Although this study considers firms with a minimum one year before and after privatization, 85% of the privatized firms in the sample had 3 years pre- and post- privatization data, 11% of the firms had 2 years, and only 4% of the sample had 1-year usable data for both before and after privatization periods. After calculating means and medians for all firms, the nonparametric Wilcoxon signed-rank test is used to test for significant changes in medians. More precisely this procedure tests whether the median difference in variable values between the pre-and post-privatization samples is zero. Then we based our calculations on standardized test statistic z.

Variables Definition

1. **Profitability:** Profitability is measured by:

- a. Return on Sale (ROS) = Net Income / Sales.
- b. Return on Asset (ROA) = Net Income / Total Assets.
- c. Return on Equity (ROE) = Net Income / Equity.

2. **Operating efficiency:** Operating efficiency is measured by:

- a. Sales Efficiency (SALEFF) = Sales / Number of Employees.
- b. Net Income Efficiency (NIEFF) = Net Income / Number of Employees.
- c. Asset turnover (AT) = Sales / Assets.

3. **Capital expenditures:** Capital expenditures are represented by the following ratios:

- a. Capital Expenditures to Sales (CESA) = Capital Expenditures / Sales.
- b. Capital Expenditures to Total Assets (CETA) = Capital Expenditures / Total Assets.

The capital expenditure is measured by the current study by an outlay of cash to acquire or upgrade a business fixed asset.

4. **Employment:** Total number of employees (EMPL) is used to measure the employment level.

5. **Leverage:** Leverage is measured by:

- a. Debt to Asset (LEV1) = Total Debt / Total Assets.
- b. Long-term Debt to Equity (LEV2) = Long-Term Debt / Equity.
- c. The inverse of times interest earned = Interest/ Net Income.

The inverse of times interest earned ratio is used because many firms do not pay interest, if interest is zero the outcome of this ratio would yield infinity. Since many firms in our sample did not pay interest; and in order to avoid losing observations, this ratio considers interest as a percentage of net income (Interest/ Net Income), (Omran, 2004).

6. **Payout Ratio (dividends policy):** Payout variable is measured by:

- a. Dividends to Sales (DIVSAL) = Cash Dividends / Sales.
- b. Dividend Payout (PAYOUT) = Cash Dividends / Net Income.

7. **Liquidity:** This study is the first to introduce this variable and, to the best of our knowledge, was not included in the basic methodology of neither MNR nor any subsequent studies done in the field of privatization. Most state-owned enterprises suffer from extensive lack of liquidity over long time of

period, since governmental agencies could not run all public enterprises on an economic basis and generating sufficient cash flows, this would affect firms' ability in satisfying both short and long-term liabilities. Most of these illiquid firms were ended up by either liquidation or merging with other stable firms. Following privatization, with private managers' intensive of profitability and efficiency, liquidity expected to be increased in order to stabilize firm's financial position. Cash flow from operation is assumed to be the most important indicator of liquidity, we relate this figure to current liabilities and to total debt respectively, whether it is an inflow or an outflow, liquidity is measured by:

- a. Cash Flow from Operations ratio (CFO) = Cash Flow from Operations/Current liabilities.
- b. Cash Flow from Operations to Total debt (CFO to debt) = Cash Flow from Operations / Total Debt.
- c. Current ratio (CR) = Current Assets / Current liabilities.

Cash Flow from Operations is the difference between the cash received and the cash spent in one period.

Statistical Techniques and Empirical Results

This section presents and discusses the empirical findings of performance changes represented by the variables described in the previous section. **First:** descriptive analysis is used to calculate the values of means, medians, maximum, and minimum for the full sample of 54 privatization transactions as well as for different sub-samples. **Second:** the nonparametric Wilcoxon signed-rank test is used in order to test the hypotheses considering the full sample of 54 privatization transactions and other sub-samples.

The study employed nonparametric techniques to test the significant changes in means, rather than using the parametric t-test; Omran (2004) used the t-statistic to test the significant changes in means, but the test of normality is rejected for most variable values, which violate one of the important assumptions underlying the t-test.

Performance Measures Before and After Privatization for the Full Sample

Table (2) reports some descriptive analysis of the empirical proxies of performance measures for both pre and post privatization periods. Minimum, Maximum, Standard Deviation, and Mean are calculated for all

empirical proxies of performance, also the percentage change in mean for each variable is calculated.

It is important to note that all mean values in this section is based on the mean of the calculated ratios (the empirical proxies) for each transaction prior and after privatization, rather than the mean of the financial data (accounting figures), which means for each transaction the empirical ratios are calculated for each year before and after privatization, and the mean of these ratios are calculated for both phases. The mean values reported in the following tables are the mean of each ratio for all transactions either before or after privatization.

As it appears from the table, return on sales ratio (ROS) which is a proxy of profitability dimension of the firm's performance, is enhanced after privatization with an increase in the minimum, maximum, and mean values, with a percentage increase in mean value by 145% after privatization. The other profitability proxies' return on assets (ROA), and return on equity (ROE), are following the same pattern of increased values for minimum, maximum, and mean after privatization. In addition, the standard deviation which is used to measure the variability or dispersion, is dropped sharply for the three measurements of profitability.

Moreover, operating efficiency ratios show consistent results with profitability ratios; which have increased after privatization and the percentage increase in mean value equals 73%. Other operating efficiency ratios Net Income Efficiency (NIEFF) and Assets

Turnover (AT) also are increased after privatization, with a percentage increase in mean by 110% and 2% respectively.

On the other hand, capital expenditures ratios come out with different results than previous performance measures. For Capital Expenditures to Sales ratio (CESA), minimum, maximum, and mean values before privatization are equal to (0), (128.57), and (3.08). However, post-privatization values for the same ratio are much lower than for those before privatization with a minimum, maximum, and mean values of (0), (1.33), and (0.13) respectively. The results showed that the percentage decrease in mean value for the CESA ratio equals 96% after privatization. The other capital expenditure ratio, Capital Expenditures to Total Assets (CETA) shows the same level of mean for both pre and post privatization with a value of 0.05. However, the standard deviation of CETA increased from 0.06 to 0.09, and decreased sharply for CESA from 17.69 to 0.26.

Furthermore, total number of employees that are indicated by Employment (EMPL), indicates a decrease in total number of employees after privatization, the mean value before and after privatization is (1021.53), and (965.34) respectively, with a percentage decrease in mean value by 6%. By looking at leverage ratios of the privatized firms, we observe that leverage is decreased after privatization; LEV1 ratio has a minimum, maximum, and mean value of (0.03), (2.41), and (0.42) respectively, before privatization.

Table 2. Descriptive Statistics of Performance Measures Before and After Privatization for the Full Sample (54 transactions)

	Performance Measures	Before Privatization				After Privatization				% Change in Means
		Mean	Std. Deviation	Minimum	Maximum	Mean	Std. Deviation	Minimum	Maximum	
Profitability (Percentage)	Sales (ROS)	-0.19	1.00	-5.17	0.71	0.08	0.29	-0.91	0.78	145%
	Assets(ROA)	0.04	0.10	-0.32	0.24	0.06	0.11	-0.18	0.39	50%
	Equity(ROE)	-0.43	3.29	-23.92	0.32	0.05	0.53	-3.36	1.10	112%
Operating Efficiency	Sales per employee	48724.59	54903.11	1653.21	242414.83	84451.27	143666.89	839.42	869637.19	73%
	Net Income per employee (NIEFF)	5100.82	23944.06	24116.96	166974.27	10718.65	36436.41	13749.58	262128.23	110%
	Assets Turnover (AT)	0.66	0.66	0.01	3.53	0.67	0.62	0.09	3.32	2%
Capital	Sales (CESA)	3.08	17.69	0.00	128.57	0.13	0.26	0.00	1.33	-96%

	Performance Measures	Before Privatization				After Privatization				% Change in Means
		Mean	Std. Deviation	Minimum	Maximum	Mean	Std. Deviation	Minimum	Maximum	
Expenditures (Percentage)	Total Assets(CETA)	0.05	0.06	0.00	0.27	0.05	0.09	0.00	0.60	0%
Employment (number of employees)	(EMPL)	1021.53	1484.34	11.00	5325.50	965.34	1495.63	11.67	7703.50	-6%
Leverage (Percentage)	Total Debt to Total Assets(LEV1)	0.42	0.34	0.03	2.41	0.38	0.30	0.01	1.48	-10%
	Long Term Debt to Equity (LEV2)	0.29	0.70	0.00	4.81	0.19	0.28	0.00	1.26	-34%
	Interest /Net Income	0.56	2.42	-4.55	12.31	0.25	0.91	-2.72	3.57	-55%
Cash Dividends (Percentage)	To Sales (DIVSAL)	0.05	0.07	0.00	0.32	0.06	0.08	0.00	0.26	20%
	To Net Income (PAYOUT)	0.34	0.34	0.00	1.14	0.40	0.43	-0.64	1.22	18%
Liquidity (Percentage)	Cash Flow from Operation to Current Liabilities (CFO)	0.50	1.04	-1.05	6.31	0.49	2.65	-15.99	8.91	-2%
	Cash Flow from Operation to Total Debt (CFO to Debt)	0.37	0.94	-0.91	6.31	0.33	2.63	-15.99	8.91	-11%
	Current Assets to Current Liabilities(CR)	2.91	4.96	0.03	37.19	4.59	7.83	0.24	50.47	58%

These values for the same ratio after privatization are equal to (0.01), (1.48) and (0.38) respectively, which means that LEV1 mean performance was decreased from (0.42) to (0.38) after privatization, with a percentage decrease in mean value by 10%. The other leverage ratios LEV2 and INTRST are following the same pattern of decrease after privatization, with a percentage decrease in mean by 34%, and 55% respectively.

Dividends ratios, on the other hand, increased after privatization as indicated by Dividends to Sale (DIVSAL) ratio. The mean value increased from (0.05) before privatization to (0.06) after privatization, with a percentage increase in mean by 20%. The Payout ratio

also increased after privatization by 18% in the mean value, as shown in the table. However, liquidity ratios indicate decrease in liquidity after privatization for both CFO and CFO to Debt ratios, and an increase in the current ratio as it appears from the table. The mean value of CFO and CFO to debt ratios before privatization are (0.5) and (0.37) respectively, and for after privatization period these values decreased to (0.49) and (0.33) respectively, the percentage decrease in mean for these ratios are 2% and 11% respectively. For the current ratio (CR) the mean value before privatization is (2.91) and increased to (4.59) after privatization, with a 58% increase in mean value.

Performance Measures according to Government Ownership Percentage

Table (3) reports descriptive statistics of performance measures divided by government ownership percentage, this sub sample distinguishes two groups of firms; firms were owned by government by less than 50%, and firms were owned by government by more than 50%.

For the sub sample where government owns significant participation of more than 50% of the firm, the mean value of (ROS) ratio increased from (-0.44) before privatization to (0.198) after privatization, which means a percentage increase in mean of 145% achieved in ROS. Comparing these results with those for the other group of firms where government owns less than 50% of the privatized firm, the results show an increase in ROS ratio from (-0.127) before privatization to (0.045) after privatization; the percentage change in mean value is equal 136%, which is lower than the percentage change in mean for the other group. Other profitability ratios ROA and ROE also increased after privatization for both groups, with higher increase for the group of firms with more than 50% government participation in the firms.

These results indicate that privatization outcomes could be affected by the level of government ownership percentage in the privatized firms; a 50% and more of ownership means that government has significant influence over that firm in management side and incentives. Selling these firms to private owners, who concentrate mainly on profit and outcome, would enhance their profitability performance. This enhancement expected to be minimal when government owns limited participation in the privatized firm.

However, these results are different for the operating efficiency dimension. For the group of firms with more than 50% government ownership, the mean value of SALEFF ratio increased from (34531) to (59038) with a change of (24508), and a percentage increase in mean of 71%. Where the other sub sample of less than 50% ownership percentage increased in a higher rate, the mean value increased from (52355) to (90952) after privatization with a change amount to (38597), and a percentage increase in mean of 74%. The other operating efficiency ratios NIEFF and AT are increased for both sub-samples after privatization; with higher increase for the group of firms with more than 50% government ownership percentage. This could be justified by the total number of employees after privatization; for large

firms with significant interference from government, the government usually commit the private sector to retain a specific level of employment especially in the early years after privatization as one term of the deal, in order to guarantee employees rights in that firm. However, when government has insignificant shares, its influence over the firm is limited either before or during privatization. For that reason, operating efficiency ratio (SALEFF) increased for the group of firms with less than 50% government ownership in higher rate than for those of more than 50% ownership, due to the higher decrease in total number of employees for the later.

Capital expenditures ratios CESA and CETA have increased for the sub sample of more than 50%, and decreased for the sub sample of less than 50% after privatization. The percentage increase in mean for CESA and CETA within the group of more than 50%, are 35% and 5% respectively. However, the percentage decrease in mean for same ratios within the group of less than 50%, are 98% and 13% respectively.

Employment as mentioned earlier, decreased after privatization for both groups, but the decrease is higher for the sub sample of less than 50%, with a percentage decrease of 9%. However, the percentage decrease in employment for the group of firms with more than 50% government ownership is only 2%.

On the other hand, leverage ratio LEV1 decreased for the sub sample of more than 50% from (0.593) to (0.425), with a percentage decrease in mean of 28% and increased slightly for the sub sample of less than 50% from (0.369) to (0.373), with a percentage increase in mean of 1%, as indicated from the table.

In addition, dividend ratios DIVSAL and PAYOUT are increased for both groups, but the increase is higher for the sub sample of more than 50%. As table (3) shows, the percentage increase in mean for the DIVSAL and PAYOUT ratios within the group of firms with more than 50% government ownership are, 74% and 78% respectively. While the percentage increase in mean for these ratios within the other group are only 11% and 8% respectively. However, descriptive analysis for liquidity ratios show mixed results. The CFO ratio decreased for both sub-samples, with a percentage decrease in mean of 3% and 2%, for the group of more than 50% and the group of less than 50% government ownership respectively.

Table 3. Descriptive Statistics of Performance Measures according to Government Ownership Percentage Level

	Government Ownership Percentage									
	More than 50%					Less than 50%				
	Before Privatization		After Privatization		% Change In means	Before Privatization		After Privatization		% Change In Means
	Mean (Median)	Min (Max)	Mean (Median)	Min (Max)		Mean (Median)	Min (Max)	Mean (Median)	Min (Max)	
ROS %	-.443 (.1316)	-4.01 (.353)	.198 (.1739)	-.430 (.577)	145%	-.1277 (.068)	-5.174 (.708)	.0454 (.0523)	-.909 (.779)	136%
ROA %	.017 (.0704)	-.316 (.153)	.1099 (.094)	-.042 (.247)	546%	.041 (.0289)	-.196 (.241)	.0486 (.0255)	-.176 (.394)	19%
ROE %	-2.083 (.119)	-3.34 (.219)	.299 (.1468)	-.058 (1.104)	244%	-.4927 (.0672)	-23.92 (.318)	-.0135 (.0584)	-3.36 (.498)	97%
SALEFF Sales per employee	34530.61 (27218.9)	3699.95 (64445.27)	59038.318 (64237.67)	9821.29 (109290.11)	71%	52355.61 (36032.72)	1653.2 (242414.83)	90952.261 (36508.25)	839.42 (869637.19)	74%
Net Income per employee (NIEFF)	2313.926 (3490.02)	-24116.96 (12645.83)	12548.79 (12347.224)	-4225.37 (33681.4)	442%	5813.7461 (2027.58)	-22638.2 (166974.27)	10250.4697 (1702.34)	-13749.58 (262128.2)	76%
AT %	.4191 (.4314)	.088 (.885)	.526 (.4198)	.099 (1.115)	26%	.7216 (.5592)	.013 (3.532)	.7123 (.5724)	.085 (3.32)	-1%
CESA %	.2019 (.1576)	.000 (.921)	.273 (.074)	.009 (1.334)	35%	3.82 (.0526)	.000 (128.57)	.092 (.0327)	.000 (.804)	-98%
CETA %	.06796 (.07043)	.000 (.169)	.0714 (.0339)	.004 (.271)	5%	.051 (.037)	.000 (.273)	.0445 (.0143)	.000 (.599)	-13%
EMPL(number of employees)	2248.62 (2192.66)	39.33 (5325.5)	2210.0 (2130.33)	36.67 (7703.5)	-2%	707.624 (198.67)	11.000 (3418.5)	646.942 (198.0)	11.667 (3393.67)	-9%
LEV1 %	.593 (.4098)	.146 (2.41)	.4256 (.361)	.145 (1.16)	-28%	.3696 (.315)	.026 (.911)	.3734 (.3472)	.015 (1.48)	1%
LEV2 %	.311 (.2204)	.000 (1.108)	.2632 (.1977)	.000 (1.26)	-15%	.2835 (.1114)	.000 (4.810)	.169 (.0746)	.000 (1.175)	-40%
INTRST %	.089 (.0533)	-.323 (.651)	.102 (.0858)	-.059 (.29)	15%	.683 (.0766)	-4.55 (12.312)	.284 (.013)	-2.72 (3.567)	-58%
DIVSAL%	.0414 (.000)	.000 (.127)	.072 (.0565)	.000 (.196)	74%	.0545 (.033)	.000 (.318)	.0603 (.0291)	.000 (.255)	11%
PAYOUT %	.2231 (.000)	.000 (.711)	.398 (.4735)	.000 (1.001)	78%	.3687 (.3636)	.000 (1.139)	.399 (.3424)	-.636 (1.217)	8%
CFO %	.751 (.5065)	-.170 (2.215)	.727 (.8407)	-.184 (1.608)	-3%	.4387 (.2736)	-1.05 (6.314)	.4305 (.4962)	-15.986 (8.906)	-2%
CFOD %	.3363 (.425)	-.157 (.789)	.374 (.435)	-.170 (1.045)	11%	.377 (.1926)	-.907 (6.314)	.3186 (.1753)	-15.99 (8.906)	-15%
CR %	1.931 (1.894)	.031 (4.81)	2.25 (2.039)	.478 (5.648)	17%	3.1575 (2.224)	.499 (37.185)	5.185 (1.9718)	.245 (50.47)	64%

However, CFOD ratio increased in the mean value, for the group of more than 50% by 11%, and decreased for the sub sample of less than 50% by 15%. While CR ratio increased for both sub samples.

Performance Measures according to Sale Percentage Level

In this section, descriptive statistics are presented for

the third sub sample of sale percentage level that government sold from its stakes in the firm, the related sub samples are; full privatization and partial privatization. Table (4), presents some descriptive results associated with each group for both before and after privatization phases. As shown from the table, ROS ratio increased after privatization for full and for partial privatization, but the increase tend to be higher within

full privatization group with a percentage increase of 120%, while the percentage increase in mean for partial privatization group is only 63%. The same pattern is associated with ROA and ROE ratios with higher increase in mean values after privatization for fully privatized firms. Furthermore, operating efficiency ratios SALEFF and NIEFF increased also after privatization for both sub samples, with higher increase in mean value for full privatization group regarding the SALEFF ratio. The AT ratio shows different results between the, two groups, AT decreased for fully privatized firms while increased for partially privatized firms. According to capital expenditures ratio CESA, this ratio decreased for

the group of full privatization and increased for the group of partial privatization, where the other ratio CETA appears unchanged after privatization for the fully privatized firms and slightly increased for the partially privatized firms. However, total number of employees has decreased after privatization for both groups, with a percentage decrease in mean of 8% for fully privatized firms, and 5% for partially privatized firms. On the other hand, all leverage ratios LEV1, LEV2, and INTRST have decreased after privatization for both groups, with higher decrease in mean for fully privatized firms except for the LEV1 ratio.

Table 4. Descriptive Statistics of Performance Measures according to Sale Percentage Level

	Sale Percentage Level									
	Full Privatization					Partial Privatization				
	Before Privatization		After Privatization		% Change in Means	Before Privatization		After Privatization		% Change in Means
	Mean (Median)	Min (Max)	Mean (Median)	Min (Max)		Mean (Median)	Min (Max)	Mean (Median)	Min (Max)	
ROS %	-0.30 (0.03)	-5.17 (0.71)	0.06 (0.05)	-0.91 (0.58)	120%	0.08 (0.10)	-0.91 (0.35)	0.13 (0.13)	-0.43 (0.78)	63%
ROA %	0.02 (0.02)	-0.32 (0.18)	0.05 (0.03)	-0.18 (0.39)	150%	0.08 (0.05)	-0.09 (0.24)	0.09 (0.07)	-0.04 (0.22)	13%
ROE %	-0.65 (0.07)	-23.92 (0.27)	0.02 (0.05)	-3.36 (1.10)	103%	0.11 (0.10)	-0.16 (0.32)	0.13 (0.11)	-0.06 (0.30)	18%
SALEFF Sales per employee	44220.84 (26622.4)	1653.21 (242414.84)	79859.83 (30831.1)	839.42 (869637.2)	81%	60434.35 (38903.1)	10809.25 (171244.41)	96389.01 (58195.9)	9821.28 (324535.17)	59%
Net Income per employee (NIEFF)	4297.08 (1177.70)	-24116.96 (166974.27)	4706.86 (1702.34)	-13749.58 (33681.40)	10%	7190.54 (4512.25)	-9527.99 (32068.9)	26349.29 (8131.15)	-4225.37 (262128.2)	266%
AT %	0.66 (0.47)	0.01 (3.53)	0.64 (0.54)	0.09 (3.32)	-3%	0.65 (0.56)	0.10 (2.34)	0.77 (0.60)	0.10 (3.27)	18%
CESA %	4.21 (0.05)	0.00 (128.57)	0.10 (0.03)	0.00 (1.00)	-98%	0.15 (0.07)	0.02 (0.92)	0.20 (0.07)	0.00 (1.33)	33%
CETA %	0.05 (0.02)	0.00 (0.27)	0.05 (0.01)	0.00 (0.60)	0%	0.06 (0.05)	0.01 (0.13)	0.05 (0.03)	0.01 (0.16)	-17%
EMPL(number of employees)	411.41 (183.67)	11.00 (3418.50)	379.20 (152.67)	14.50 (3258.00)	-8%	2607.86 (2693.00)	28.67 (5325.50)	2489.32 (2292.33)	11.67 (7703.50)	-5%
LEV1 %	0.43 (0.35)	0.03 (2.41)	0.40 (0.31)	0.01 (1.48)	-7%	0.38 (0.33)	0.23 (0.72)	0.35 (0.35)	0.11 (0.79)	-8%
LEV2 %	0.29 (0.03)	0.00 (4.81)	0.19 (0.00)	0.00 (1.26)	-34%	0.28 (0.24)	0.00 (0.68)	0.19 (0.17)	0.00 (0.40)	-32%
INTRST (Percentage)	0.70 (0.01)	-4.55 (12.31)	0.26 (0.01)	-2.72 (3.57)	-63%	0.20 (0.12)	-0.32 (0.65)	0.20 (0.12)	-0.16 (0.81)	0%

	Sale Percentage Level									
	Full Privatization					Partial Privatization				
	Before Privatization		After Privatization		%	Before Privatization		After Privatization		%
	Mean (Median)	Min (Max)	Mean (Median)	Min (Max)		Change in Means	Mean (Median)	Min (Max)	Mean (Median)	
DIVSAL%	0.04 (0.00)	0.00 (0.20)	0.05 (0.00)	0.00 (0.26)	25%	0.09 (0.07)	0.00 (0.32)	0.09 (0.07)	0.00 (0.24)	0%
PAYOUT %	0.28 (0.14)	0.00 (1.14)	0.29 (0.17)	-0.64 (1.22)	4%	0.49 (0.58)	0.00 (0.98)	0.69 (0.84)	0.00 (1.20)	41%
CFO %	0.38 (0.19)	-1.05 (6.31)	0.35 (0.30)	-15.99 (8.91)	-8%	0.82 (0.47)	0.02 (2.22)	0.86 (0.81)	-0.05 (2.21)	5%
CFOD %	0.34 (0.11)	-0.91 (6.31)	0.25 (0.13)	-15.99 (8.91)	-26%	0.45 (0.32)	0.02 (1.25)	0.54 (0.42)	-0.02 (2.21)	20%
CR %	3.16 (1.75)	0.03 (37.19)	5.36 (2.04)	0.24 (50.47)	70%	2.24 (2.26)	0.61 (4.01)	2.58 (1.97)	1.22 (4.007)	15%

However, the INTRST ratio is unchanged after privatization for partially privatized firms.

In addition, dividend ratios DIVSAL and PAYOUT have increased after privatization for both groups of firms, except for the DIVSAL ratio within the group of partial privatization that stayed unchanged after privatization. Furthermore, all liquidity ratios increased within the group of partial privatization. In the contrary, CFO and CFOD ratios decreased for full privatization group, and only the CR ratio increased for fully privatized firms.

HYPOTHESES TESTING

First Hypothesis

H01: There is no significant difference of the financial and operating performance, measured by profitability ratios, operating efficiency ratios, capital expenditures ratios, employment level, leverage ratios, dividends (payout) ratios, and liquidity ratios, attributed to privatization.

In order to test this hypothesis, the nonparametric Wilcoxon-signed rank test is employed to assess any

significant performance changes between before and after privatization considering the full sample of 54 privatization transactions. Table (5) presents the statistical results of the first hypothesis. The results show that there is a significant increase in operating efficiency after privatization for both SALEFF and NETEFF ratio at 1 percent sig level, while there is no significant increase in mean value of the AT ratio after privatization.

However, for capital expenditures ratios the results are mixed and indicate that, there is significant increase in the CETA ratio at 5 percent sig level. In addition, employment decreased significantly after privatization at 5 percent level. All leverage ratios decreased after privatization but that decrease was not significant. Furthermore, dividends increased after privatization, this increase is significant for the DIVSAL ratio at 5 percent sig level, and insignificant for the PAYOUT ratio at any level of significance. Liquidity, on the other hand, decreased significantly after privatization for CFO ratio at 5 percent sig level and insignificantly for the CFOD ratio. While the CR increased significantly after privatization at 5 percent sig level.

Table 5. Wilcoxon Singed Rank Test - Full Sample of Privatization Transactions

		N	Mean Before	Mean After	Mean Change	Z	Asymp. Sig. (2-tailed)
Profitability	ROS %	54	-0.19	0.08	.27	-1.003(a)	.316
	ROA %	54	0.04	0.06	.02	-.607(a)	.544
	ROE %	54	-0.43	0.05	.48	-.633(a)	.527

		N	Mean Before	Mean After	Mean Change	Z	Asymp. Sig. (2-tailed)
Operating Efficiency	SALEFF Sales per employee	54	48724.59	84451.27	35726.68	-4.042(a)	.000
	Net Income per employee (NIEFF)	54	5100.82	10718.65	5617.83	-2.803(a)	.005
	AT %	54	0.66	0.67	.01	-1.270(a)	.204
Capital Expenditures	CESA %	54	3.08	0.13	-2.95	-1.511(b)	.131
	CETA %	54	0.05	0.06	0.01	-2.071(b)	.038
Employment	EMPL (number of employees)	54	1021.53	965.34	-56.19	-2.062(b)	.039
Leverage	LEV1 %	54	0.42	0.38	-.04	-1.408(b)	.159
	LEV2 %	54	0.29	0.19	-.1	-.753(b)	.452
	INTRST	54	0.56	0.25	-.31	-.443(b)	.658
Dividends	DIVSAL %	54	0.05	0.06	.01	-2.205(a)	.027
	PAYOUT %	54	0.34	0.40	.06	-1.172(a)	.241
Liquidity	CFO %	54	0.50	0.49	-.01	-2.157(a)	.031
	CFOD %	54	0.37	0.33	-.04	-1.821(a)	.069
	CR %	54	2.91	4.59	1.68	-2.303(a)	.021

The overall results indicate that there is a significant increase in operating efficiency, capital expenditures and dividends after privatization. Conversely, there are significant decreases in employment, and liquidity. Where an insignificant increase in profitability, and insignificant decrease in leverage were recorded. Based on these results the null hypothesis (H01) that suggests no significant difference in the financial and operating performance attributed to privatization is rejected, and the alternative hypothesis (HA1) is accepted.

Second Hypothesis

H02: There is no significant difference in post-privatization performance changes, attributed to the level of government ownership percentage in the privatized firm.

Table (6) presents the empirical results of the Wilcoxon Signed Rank test for the second hypothesis for each group separately. As the table presents, the results show that there is no significant increase in firms' profitability after privatization for both groups, although the ROS ratio increased by 64% for the group of firms with more than 50% government ownership, and by only 17% for the firms with less than 50% government ownership. Clearly, firms with higher governmental ownership perform better after privatization, even though the increase did not reach the required significant level. As discussed before, this is due to the increased

influence of government in managing firms when it has significant ownership in these firms. Selling these firms to more professional managers would, achieve higher increase in profitability. In addition, the results indicate that there is significant increase in operating efficiency for both groups at 1 percent level.

However, capital expenditures show mixed results, with insignificant increase for the group of more than 50% ownership, and decreased significantly for the group of less than 50% at 5 percent level. Employment on the other hand, decreased for both groups, but the decrease is not significant when government owns more than 50% of the firm and significant at 5 percent level when government owns less than 50% of the privatized firm. As discussed before in the descriptive analysis section, this could be justified by the regulations that government committed the buyer, regarding the retention policy of employees after privatization. The ability of government to set such conditions increased when government owns significant participation in that firm of more than 50% ownership, which means that government has significant influence over that firm. Furthermore, the results show that there is no significant change in leverage, dividends, and liquidity for both groups of firms.

The overall empirical results shown in table (6), suggest that all performance proxies have been changed after privatization at different levels across the two

groups. However, only operating efficiency (SALEFF) increased significantly for both groups at 1 percent level, while a significant decrease in capital expenditures and employment at 5 percent level, were recorded for the group of firms with less than 50% government ownership. All other performance measures have

changed insignificantly after privatization. Based on these results the null hypothesis (H02), which states that there is no significant difference in performance according to government ownership percentage, is rejected and the alternative hypothesis (HA2) is accepted.

Table 6. Wilcoxon Signed Rank Test Sub Sample of Government Ownership Percentage

Government Ownership Percentage	N	Mean Before	Mean After	Mean Change	Z	Asymp. Sig. (2-tailed)
A. More than 50%						
Profitability (ROS%)	11	-.44330	.19972	.64302	-1.423(a)	.153
Operating Efficiency (SALEFF Sales per employee)	11	34530.609	59038.3172	24507.708	-2.667(a)	.008
Capital Expenditures (CESA %)	11	.20188	.27282	.07094	-.089(a)	.929
EMPL(number of employees)	11	2248.6212	2210.0	-38.6212	-.622(b)	.534
Leverage (LEV1%)	11	.59322	.42550	-0.16772	-1.245(b)	.213
Dividends (DIVSAL %)	11	.04143	.07240	0.03097	-1.820(a)	.069
Liquidity (CFO %)	11	.75103	.72698	-0.02405	-.089(a)	.929
B. Less than 50%						
Profitability (ROS%)	43	-.12767	.04538	.17305	-.435(a)	.664
Operating Efficiency (SALEFF Sales per employee)	43	52355.6098	90952.2606	38596.651	-3.200(a)	.001
Capital Expenditures (CESA %)	43	3.82011	.09200	-3.72811	-2.004(b)	.045
EMPL(number of employees)	43	707.62403	646.94186	-60.68217	-2.004(b)	.045
Leverage (LEV1%)	43	.36956	.37336	0.0038	-.869(b)	.385
Dividends (DIVSAL %)	43	.05451	.06025	0.00574	-1.509	.131
Liquidity (CFO %)	43	.43873	.43050	-0.00823	-.869	.385

Third Hypothesis

H03: There is no significant difference in post-privatization performance changes attributed to the level of sale percentage from government ownership in the privatized firms.

The empirical results of the Wilcoxon signed rank test for this hypothesis are presented in table (7), which indicate that there is significant increase in operating efficiency achieved by both fully and partially privatized firms at 1 percent level, also there is a significant decrease in liquidity for fully privatized firms at 5 percent level. However, other performance measures have changed insignificantly for both groups. On the other hand, capital expenditures show different results with insignificant decrease after privatization for fully privatized firms, and insignificant increase for partially privatized firms. The reason for the decrease in capital

expenditures of fully privatized firms can be justified by the significant decrease in liquidity, lack of liquidity limits firms' ability to expand and to spend on capital investments. The significant decrease in liquidity for fully privatized firms at 5 percent level explained with the decrease in leverage by 32.5%, which means that fully privatized firms dedicate most of their liquidity to satisfy debt rather than to expand in capital investments. From the previous discussion, we conclude that all performance measures have changed after privatization for both groups at different levels, but the significant change is recorded only for operating efficiency and liquidity at 1 and 5 percent level respectively.

Also the results suggest that full privatization is superior to partial privatization in profitability, leverage and dividends, although most of these performance measures changes did not reach any significant level,

while partial privatization is superior to full privatization in terms of liquidity. Based on these results the null

hypothesis (H04) is rejected, and the alternative hypothesis (HA4) is accepted.

Table 7. Wilcoxon Signed Rank Test Sub-Sample of Sale Percentage Level

Sale Percentage Level	N	Mean Before	Mean After	Mean Change	Z	Asymp. Sig. (2-tailed)
A. Full Privatization						
Profitability (ROS%)	39	-.29770	.05685	0.35455	-1.298(a)	.194
Operating Efficiency (SALEFF Sales per employee)	39	44220.83620	79859.83334	35638.997	-2.889(a)	.004
Capital Expenditures (CESA	39	4.20989	.10249	-4.1074	-1.437(b)	.151
EMPL(number of employees)	39	411.40598	379.19658	-32.2094	-1.465(b)	.143
Leverage (LEV1%)	39	.42777	.39527	-0.0325	-1.116(b)	.264
Dividends (DIVSAL %)	39	.03660	.05144	0.01484	-1.870(a)	.061
Liquidity (CFO %)	39	.37891	.34776	-0.03115	-2.177(a)	.029
B. Partial Privatization						
Profitability (ROS%)	15	.08294	.12873	.04579	-.682(a)	.496
Operating Efficiency (SALEFF Sales per employee)	15	60434.35437	96389.01310	35954.659	-3.010(b)	.003
Capital Expenditures (CESA %)	15	.15330	.19733	.04403	-.568(a)	.570
EMPL (number of employees)	15	2607.85556	2489.32222	-118.5333	-1.477(a)	.140
Leverage (LEV1%)	15	.38226	.35462	-.02764	-.966(a)	.334
Dividends (DIVSAL %)	15	.09150	.09206	.00056	-1.099(b)	.272
Liquidity (CFO %)	15	.82330	.86304	.03974	-.454(b)	.650

CONCLUSIONS AND RECOMMENDATIONS

This study examines the financial and the operating performance of privatized firms in Jordan between 1995-2006, with a total sample of 43 firms and 54 privatization transactions. The objective is to determine whether privatization improves firm's performance. For that sake, a wide range of performance proxies were calculated before and after privatization.

The results indicate that for the full sample there was a significant increase in operating efficiency, capital expenditures, and dividends at 1, 5, and 5 percent sig level respectively. Also, significant decrease in employment and liquidity at 5 and 1 percent level respectively is recorded, except for the liquidity ratio (CR) that exhibits significant increase at 5 percent level. However, the results indicate that profitability increased insignificantly after privatization, while leverage decreased insignificantly.

In addition, the Wilcoxon Signed Rank test is employed for all sub samples. For the sub sample of government ownership percentage, the empirical results

show that when government owns more than 50% of the privatized firm, the firms achieved a significant increase in operating efficiency at 1 percent sig level. Comparing these results with those for the group of firms where government owns less than 50%, the results show a significant increase in operating efficiency at 1 percent level, and a significant decrease in capital expenditures and employment at 5 percent level.

By comparing the total results, the researchers found that the financial and operating performance for the group of firms where government ownership percentage exceeds 50% of the total firm are more enhanced relative to the other group. With higher increase in profitability, capital expenditures, and dividends, and higher decrease in leverage, although the difference in performance did not reach the significant level for all measures. As for the partial and full privatization sub samples, the results show that fully privatized firms perform better in terms of profitability, dividends and leverage, although the improvement is not significant for some proxies.

Taking into account all these results, the evidence

suggests that both full sample as well as all sub-samples show significant improvement following privatization. Additionally, the level of performance improvement differs according to government ownership percentage, and sale percentage level. Moreover, the most important observation is that partial privatization does not work as well as full privatization, and performance improvements tend to be higher when the government privatizing firms where it has more than 50% ownership in each firm, because of the significant influence and regulations that government used to practice on these firms before privatization.

In light of the results of this study, certain policy implications could be drawn, the researchers suggest the following recommendations:

1. The government should continue the privatization process, for the increased benefits of such program on the firms' financial and operating performance.
2. The government should not remain a shareholder in the privatized firms if it desires to improve their performance by preventing state interference in management, which means that full privatization policy is more preferable in terms of the outcomes.
3. The government should concentrate on privatizing firms that it has significant ownership percentage in order to have better outcomes from privatization.
4. Further investigations and studies should be implemented in the field of privatization, as this study is considered the first evidence in Jordan regarding privatization.

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