CHAPTER 4 − RESEARCH RESULTS

The results of pre- and post listing comparison between GLCs and Non-GLCs are presented in Table 4.1. Each column separated by ownership type in top and followed by mean, median and standard deviation. The 25 GLCs statistic results of three period are listed under “GLCs (25 firms)” headings and The 62 Non-GLCs statistic results of three period are listed under “Non-GLCs (25 firms)” headings which are corresponding with GLCs listing periods. The firms’ performance indicators are compared in three groups of profitability, efficiency and leverage.

At first glance GLSs’ profitability measures, ROS, ROA and ROE show greater than Non-GLCs’ with lower standard deviations in all groups except for median ROE for pre and post listing periods. This means that GLCs have gained higher profitability with lower risk. Adversely, Non-GLCs have efficiency ratio more than GLCs but with higher standard deviations in all three comparisons and if the Non-GLCs’ efficiency is adjusted for risk, the results may be different.

Surprisingly, TD/TA leverage proxy in GLCs is lower than Non-GLCs’ long term debt to total asset ratio. This outcome is not consistent with previous findings that show higher debt for GLCs due to governments’ support. This superiority may be due to Non-GLCs’ main shareholders that have institutions with high power and strong link to government and quasi government organizations that result in higher loan capability for Non-GLCs.

Another leverage proxy, LTDE ratio, shows higher in pre-listing and lower in post-listing long-term debt for GLCs which is in line with previous findings that, the GLCs debt level is reduced after SIP.

Table 4-1: GLCs and Non-GLCs pre-/post- listing comparison

Variables	GLCs (25firms)	N-GLCs (62firms)	GLCs (25firms)	N-GLCs (62firms)	GLCs (25firms)	N-GLCs (62firms)
	Mean Median (STDEV)	Mean Median (STDEV)	Mean Median (STDEV)	Mean Median (STDEV)	Mean Median (STDEV)	Mean Median (STDEV)
	All Periods		Pre-listing		Post-listing	
ROA	0.1479 0.1386 (0.12)	0.144 0.1221 (0.147)	0.1567 0.1356 (0.051)	0.1425 0.1219 (0.068)	0.1599 0.1509 (0.071)	0.1503 0.1251 (0.099)
ROE	0.7081 0.3968 (2.356)	0.4799 0.3437 (0.683)	0.5513 0.4706 (0.373)	0.52 0.5019 (0.321)	0.41 0.3788 (0.137)	0.339 0.4606 (0.434)
ROS	0.2097 0.199 (0.198)	0.2121 0.1586 (0.204)	0.2222 0.2171 (0.073)	0.1988 0.1984 (0.092)	0.2214 0.155 (0.132)	0.2079 0.1568 (0.167)
TS/TA	0.7377 0.683 (0.325)	0.8486 0.7887 (0.467)	0.7319 0.7041 (0.253)	0.8117 0.8271 (0.361)	0.768 0.7075 (0.238)	0.8198 0.8336 (0.279)
TD/TA	0.6153 0.6231 (0.217)	0.6363 0.6515 (0.191)	0.5875 0.5604 (0.151)	0.6198 0.659 (0.126)	0.5909 0.5859 (0.126)	0.617 0.6503 (0.137)
LTDE	0.0965 0.1696 (5.475)	0.4718 0.1779 (1.35)	0.5702 0.3413 (0.736)	0.4818 0.34 (0.441)	0.2736 0.259 (0.153)	0.3721 0.2296 (0.345)

The sample period of (2001–2008). The fourth and fifth columns show before listing 25 GLCs' and 62 Non-GLCs' statistics. Sixth and seventh present the after listing statistics of 25 GLCs and 62 Non-GLCs. ROA represents return on assets; ROE, return on equity; ROS, return on sales and MBR, market to book equity ratios. TS/TA, total sales to total assets ratio measure the firms' efficiency. The leverage proxies, is measured by TD/TA, total liabilities to total assets and LTDE, long-term debt over total equity.

4.1. Pre- and Post-listing Performance Changes

The first comprehensive test examines significant performance change in GLCs by comparing pre-/post-listing data. Based on the outcome we can

conclude whether the privatization has significant effect on companies' performance or not. If the privatization in Iran is not related to the GLCs performance improvement, as declared by Iranian government officials, it presumed that the performance indicator will not show significant increase after listing.

The pre- and post-listing performance indicators outcome of 25 GLCs for seven years period is presented in Table 4.2. The First major row of table shows the profitability ratios statistics. The real net income (NI) ratio shows increase in mean (median) from 4.8 (1.29) at the before-listing time period to 5.7 (1.45) at the post-listing time period. The t-value of -0.50 is very low and the 87% percent increase in mean is not significant. The Wilcoxon test result of -3.2 shows significant increase in median of 16.7% at the 1% level. The firms' positive changes relative to those that show negative changes are showed in the last column. The ratio of ''19/6'' is showed for NI. That means 19 firms of 25 GLCs experience improvement in NI and just 6 firms experience a decrease after SIP. Therefore, the outcomes show increase in income but the t-test is not statistically significant.

However, another profitability proxy (ROS) exercises increase of 13% (11.7%) in mean (median). actuality, the t-test for mean and the Wilcoxon test for median both are significance at 1% level. The ratio of ''16/9'' in last column also point out improvement in ROS ratio of 16 firms and only 9 firms practice a decrease in ROS after SIP. Hence, if we consider ROS as profitability measure we can conclude that SIP helps GLCs' profitability improvement much. Taken together, the results so far show evidence that SIP in Iran have

provided profitability improvements and prove H1 hypothesis that Privatized firm's profitability increases after share issue privatization (SIP).

Table 4-2: GLCs pre-/post-listing performance comparison

variables	Sample period	Obs.	Mean (med.) before	Mean (med.) after	Mean (med.) change	t-test Wilcoxon	P. ratio
NI	(-3to 3)	25	4.88 (1.29)	5.75 (1.45)	0.86 (0.16)	-0.50 (-3.0**)	16/9
ROS		25	0.22 (0.21)	0.35 (0.32)	0.13 (0.11)	-4.1** (-2.8**)	16/9
NI/Employee		25	100.3 (64.2)	297.7 (128.3)	197.3 (64.15)	-2.2** (-4.05**)	19/6
RS/Employee		27	466.7 (366.9)	639 (427.4)	172.84 (60.55)	-1.83* (-1.21)	17/10
Output		26	1.240 (1.13)	1.917 (1.54)	0.677 (0.410)	-4.9** (-4.3**)	20/6
TIE		23	50.90 (7.21)	508.3 (18.6)	457.46 (11.40)	-2.79** (-2.4**)	15/8
OCF/TD		27	0.35 (0.36)	0.48 (0.44)	0.125 (0.08)	-3.1** (-2.8**)	19/8

The table presents, the number of observations in second column, the performance proxies' mean and median value in next three columns for period of three years before and after listing on average. The t- and Wilcoxon Z-test to test significance of the mean and the median change. The last column shows the number of firms that experience increase/decrease changes.
** (*) denotes significance at the 5% (10%) level (two tails).

The second major row of table shows all efficiency ratios statistics. By the way, we can see an increase in RS/Employee and NI/Employee ratios. Specifically, the RS/Employee ratio's mean (median) increase is 173 (60.5) and NI/Employee experience increase of 197 (64.2) in mean (median). However, the test statistics is significant at 5% level for NI/Employee and 10% level for RS/Employee. In line with above results 19 and 17 out of 25 and 26 firms experience respectively increase in both efficiency ratios after SIP. Hence, despite of the fact that the median test of RS/Employee shows no

significant increase the result is consistent with H2 hypothesis: Privatized firm's efficiency increases after share issue privatization (SIP).

The third major row of table presents the output ratios statistics. The RS as output proxy shows a considerable improvement in mean and median after IPO. The table shows 4.99 for t-value and 4.3 for Wilcoxon test which are both significant at 1% level. Also, the increase/decrease column shows output improvement for 20 firms and only 6 GLCs experience output reduction after listing. This result show high significant improvement in output and prove H3 hypothesis that, Privatized firm's output increases after share issue privatization (SIP).

The fourth major row of the table reports the leverage ratios statistics. The outcome shows downward tendency in leverage after SIP. Recognizing the explanation of cash flow and time interest ratios that, show better debt state when get higher, Positive change in OCF/TD and TIE means an upgrade in leverage state for GLCs, i.e. less burden in debt after IPO, which is the case for both of them. The t-stats of -2.4 and -2.8 are significant at 5% for TIE and OCF/TD. With regard to the leverage improvement, experiencing leverage decrease versus leverage increase, TIE increases in 15 firms and 8 GLCs experiences decrease. Cash flow ratio shows that 19 firms experience increase while 8 GLCs experience decrease after SIP. In this case also the results are in line with previous experiments to confirm the H4: Privatized firm's leverage decreases after share issue privatization (SIP).

All in all, our evidence supports all four hypotheses and suggests that SIP improves the performance of privatized firms. Thus far, we found noticeable evidence, that privatization in Iran has yielded performance improvement for firms after IPO.

To go further, we run another test to examine possible effect of change in ownership and general economic factors. Controlling the GDP growth and government's ownership effects by cross-sectional regression test, give completely different results.

Table 4-3: Cross sectional regressions on the performance changes

Variable	Dependent variable						
	Profitability		Efficiency		Output	Leverage	
	ΔNI	ΔROS	NI/ Empy	ΔRI/ Empy	ΔRS	ΔTS/TA	ΔOCF/TL
Constant	0.437	0.27	251.6	317.1	0.225	103.1	-0.02
	(0.07)	(1.9*)	(0.55)	(0.62)	(0.32)	(0.12)	(-0.09)
ΔGDPGR	0.65	0.2	173.3	205.1	0.71	564	0.118
	(0.15)	(-1.3)	(0.52)	(0.55)	(1.39)	(0.96)	(0.72)
ΔGOV	0.00	0.00	2.57	4.80	0.005	3.402	0.002
	(0.03)	(0.6)	(0.35)	(0.59)	(0.52)	(0.26)	(0.60)
Adj.R2	0.09	0.12	0.01	0.026	0.023	0.02	0.06
OBS	24	24	24	24	24	24	24

This table provides the empirical results of following the cross-sectional regression model:

$$\Delta \mathbf{PP_i} = \alpha + \beta_1 \Delta \mathbf{DGDPGR_i} + \beta_2 \Delta \mathbf{GOV_i} + \varepsilon_i \qquad (1)$$

Where PP is the performance measure. GDPGR stand for gross domestic product growth rate. GOV stand for government ownership. The difference sign "Δ" is the average of the three-year post-privatization data minus the average of the three-year pre-privatization data, which shows the difference in mean change before and after listing.

* and ** denote statistical significance at the 10% and 5% levels.

Profitability, efficiency and output indicators that showed significant increase in previous test become insignificant in relation with ownership and GDP change. Base on the statistics that showed in Table 4.3, we can suggest that the improvement in performance which reported in table 4.2 could not be

attributed much to the ownership change and other factors that have significant effect on performance improvement should considered.

4.2. Pre-listing Performance Comparison

To evaluate the efficiency of GLCs before SIP, we compare GLCs performance proxies with the market and industry average in pre-listing period. The outcome of pre-listing comparison of GLCs and market average for seven years prelisting period is presented in table4.4 panel A. the ROS ratio shows mean (median) of 0.20 (0.20) for GLCs and mean (median) of 0.23 (0.23) for market average. The difference shows 0.03 (0.03) increase for GLCs mean (median) but the t-value is not statistically significant. Indeed, none of profitability measures show significant difference except ROE in median which shows lower than market.

Altogether, we can suggest that on average, the GLCs have no significant difference in profitability from the market average in three years pre-listing period. For the efficiency proxy, total sales to total assets (TS/TA) ratio shows lower for GLCs than the market average. The table 4.4 shows 1.77 (2.2) for t-values (Wilcoxon test) of the mean (median) difference which has low (high) significant level of 10% (5%). The outcome shows lower total debt to equity ratio, as leverage proxy for GLCs, than the market. The difference for mean is 0.07 and for median is 0.06, while the significance level of 10% rests on only the mean comparison which is not high. Again the result is not in favor of our expectation which is based on previous findings that GLCs are able to relay on government support in debt contracts; or should be

Table 4-4 GLCs with the market/industry average Comparison

Perfo-mance Variable	Sample period	No. GLC	Mean (med) GLCs	Mean (med) market	Mean (med) changes	t-test Wilcoxon	+ve/-ve ratio
Before listing							
ROS	(-3 to -1)	25	0.20	0.23	-0.02	-1.42	14/10
			(0.20)	(0.23)	(-0.03)	(-1.28)	
ROA		25	0.148	0.15	-0.004	-0.26	15/9
			(0.13)	(0.15)	(-0.01)	(-0.48)	
ROE		25	0.78	0.54	0.23	0.72	19/5
			(0.38)	(0.55)	(-0.17)	(-2.4**)	
TS/TA		25	0.71	0.83	-0.124	-1.77*	19/5
			(0.70)	(0.85)	(-0.15)	(-2.2**)	
TL/TA		25	0.59	0.66	-0.074	-1.91*	14/10
			(0.59)	(0.66)	(-0.06)	(-1.51)	
Panel B. GLCs with the industry average comparison							
ROS	(-3 to -1)	25	0.20	0.23	-0.027	-1.014	15/9
			(0.20)	(0.22)	(-0.018)	(-0.8)	
ROA		25	0.14	0.17	-0.028	-1.36	14/10
			(0.13)	(0.16)	(-0.033)	(-1.22)	
ROE		25	0.78	0.65	0.1291	0.43	17/7
			(0.38)	(0.53)	(-0.153)	(-1.8*)	
TS/TA		25	0.71	0.84	-0.129	-2.13**	21/3
			(0.70)	(0.85)	(-0.156)	(-3.0**)	
TL/TA		25	0.59	0.66	-0.076	-1.99*	14/10
			(0.59)	(0.67)	(-0.077)	(-1.7*)	
After listing							
ROS	(+1 to +5)	24	0.24	0.22	0.018	0.57	12/13
			(0.25)	(0.22)	(0.02)	(-0.44)	
ROA		24	0.16	0.11	0.04	2.57**	8/17
			(0.16)	(0.12)	(0.04)	(-2.1**)	
ROE		24	0.42	0.39	0.03	0.731	14/11
			(0.36)	(0.40)	(-0.04)	(-0.12)	
TS/TA		24	0.71	0.77	-0.05	-1.085	16/9
			(0.69)	(0.77)	(-0.07)	(-1.27)	
TL/TA		24	0.585	0.64	-0.062	-1.86*	14/11
			(0.60)	(0.65)	(-0.051)	(-1.49)	
Panel D. GLCs with the industry average Comparison							
ROS	(+1 to +5)	24	0.24	0.23	0.008	0.43	15/10
			(0.25)	(0.17)	(0.07)	(-0.06)	
ROA		24	0.16	0.14	0.017	1.28	8/17
			(0.16)	(0.15)	(0.01)	(-1.3)	
ROE		24	0.42	0.47	-0.045	-0.94	12/13

Table4.4: GLCs with the market/industry average Comparison *(Continues)*

Performance Variable	Sample period	No. GLC	Mean (med) GLCs	Mean (med) market	Mean (med) changes	t-test Wilcoxon	+ve/-ve ratio
			(0.36)	(0.45)	(-0.09)	(-0.7)	
TS/TA		24	0.71	0.74	-0.02	-0.60	13/13
			(0.69)	(0.71)	(-0.02)	(-0.17)	
TL/TA		24	0.58	0.64	-0.05	-1.75*	14/11
			(0.60)	(0.64)	(-0.04)	(-1.3)	

The table presents performance variable, the number of observations, the mean and median values of various proxies and the mean and median difference in proxies tests of significance of the mean and median differences with The t- and Wilcoxon Z-test to test for any significant difference in the mean and median. The last column shows the proportion of GLC firms that have higher value than the market/industry average.
** (*) denotes significance at the 5% (10%) level (two tails).

backed by government funding more than private firms. The higher leverage for market possibly is related to the ultimate private-shareholders' power because; most of them are semi-government organizations.

The outcome of performance test between GLCs and industry average is reported in Table 4.4 Panel B. For the prelisting period of three-year, the ROS and ROA mean (median) differences between market average and GLCs are not statistically significant. Indeed, none of profitability measures show significant difference except ROE in median which shows lower than market. All in all indicate that, the profitability scale of GLCs have no significant difference from the industry average in three years before privatization time horizon. Total sales to total assets, efficiency proxy, show lower for GLCs than the market average. The results show 2.13 (3.0) for t-values (Wilcoxon statistics) of the mean (median) difference which is statistically significant at 5% (5%) level. The total debt to equity ratio, indicate

lower for GLCs than the industry average. The statistics outcomes record 0.076 (0.077) for mean (median) difference and the statistical significance rests on mean (median) at 5% (10%). Over all, the GLCs' efficiency proxies are significantly lower than market and industry average.

4.3. Post-listing Performance Comparison

The outcome of performance test between GLCs and market average is reported in Table 4.4 Panel C. For the post-listing period of three to five years, the ROA ratio shows mean (median) of 0.16 (0.17) for GLCs and mean (median) of 0.12 (0.12) for market average. The difference shows 0.04 (0.05) increase for GLCs mean (median) with a t-value of 2.58 (2.17) that is significant at 5% (5%) level. Besides ROA that is higher for GLCs, other performance indicators show no significant difference of the market average. The leverage proxy shows the same as pre-listing result. However, GLCs show only in ROA ratio superiority performance.

The simple averaging calculation of market average biases towards small firms; Hence, to investigate this size effect on GLCs performance, as showed in last column, we compare GLCs with industry averages and the results showed in panel B and D. notice the explanation of industry average; the performance proxies averages come from those of companies matched by industries.

The statistics outcome for the profitability measures shows no significant differences between mean (median) of GLCs and industry average. Specifically, for the three-year before-listing period, no statistical significance

showed for any of mean or median difference, except the TL/TA mean (median) difference that shows lower for GLCs and bears significant level of 5% (1%).

Finally, we compare the performance measures of GLCs with those of Non-GLCs matched by listing date. We hypothesize that if the GLCs are relatively efficient, their performances should be similar to Non-GLCs'. For this comparison we use the after-listing (listing year is not included) time horizon and use the ratios of profitability and leverage which are more commonly used. At last, to examine proposed hypothesis we ran Equation (2). The test outcome is reported in Table 4.5.

Table 4-5: Post listing pooled regression on GLCs and non-GLCs

	Profitability				Efficiency	Output	Leverage	
	ROA	ROE	ROS	MBR	EFFI	RSALES	TD/TA	LTDE
Constant	0.16	0.086	0.21	0.08	0.91	1.50	0.48	0.320
	(4.1)	(0.50)	(3.2**)	(0.04)	(6.18)	(2.47)**	(7.73)	(1.44)
	4.18	0.61	0.001	0.966	1.62	0.01	9.02	0.15
DUM	0.02	5.67	0.074	0.083	-0.12	0.39	2.24	-0.06
	(1.5)	(1.9*)	(0.06)	(0.13)	(-2.5**)	(1.98*)	(2.2*)	(-0.9)
	0.11	0.046	0.94	0.895	0.009	0.047	0.02	0.35
GDPGR	-0.27	0.010	0.024	61.07	-1.03	176	-0.02	0.80
	(-0.4)	(-0.2)	(1.10)	(1.9*)	(-0.42)	(1.17)	(-1.3)	(0.22)
	0.66	0.84	0.27	0.054	0.67	0.28	0.192	0.82
Adj.R2	0.00	0.005	-0.00	0.004	0.012	0.013	0.011	-0.00
DW	0.96	1.38	0.695	1.528	0.706	1.106	0.875	1.35
OBS	388	388	388	388	388	388	388	375

This table provides the empirical results of following pooled regression model:

$$PP_{i,t} = \alpha + \beta 1 DUM_i + \beta 2 GDPGR_t + \varepsilon_i$$

PP represent the performance measures. RSALES, The real sales are divided by a billion. DUM, the dummy variable takes the value of 1 for GLCs, and a value of 0 otherwise. GDPGR represent the real gross domestic product growth for the relevant year of an observation.

** (*) denotes significance at the 5% (10%) level (two tails).

significant level which is rather low.

The results for leverage are not definite. The total debt ratio, indicate higher leverage level for GLCs with significant level of 5%, but the long-term debt to equity ratio shows no significant difference between GLCs and Non-GLCs. Hence, we conclude that GLCs bears more short-term debt than non-GLCs. This may be due to the GLCs cash support by the government. In this case, GLCs do not need to resort to raising bonds or bank borrowing which in turn leads to less long-term debt. Notice that as a control variable, GDPGR (GDP growth), captures the impact of the general economic condition on firm

Table 4-6: Market and control portfolio adjusted returns for GLCs

	1 Year	2 Years	3 Years	4 Years	5 Years
Observations	23	46	69	92	115
Raw portfolio returns					
Mean	1.081	1.014	1.099	1.121	1.079
t-value	(17.56**)	(24.79**)	(22.14**)	(27.38**)	(29.51**)
EWMR adjusted					
Mean	0.081	0.102	0.149	0.154	0.141
t-value	(1.324)	(2.539*)	(3.134**)	(3.919**)	(4.106**)
50 Top Adjusted					
Mean	0.058	0.089	0.072	0.172	0.195
t-value	(0.948)	(2.199*)	(1.575)	(4.05**)	(5.273**)
Non-GLC adjusted					
Mean	-0.3	-0.11	-0.01	0.035	0.022
t-value	(-4.95**)	(-2.29*)	(-0.25)	(0.811)	(0.596)
DIVMR adjusted					
Mean	0.036	0.038	0.077	0.067	0.055
t-value	(0.592)	(0.952)	(1.654)	(1.736)	(1.621)

This table presents the summary statistics for cumulative market-adjusted or control portfolio adjusted stock returns of privatized companies until five years after the privatization. The adjustment is calculated below:

$$CR_{i(a\ b)} = \prod(1 + R_{i,t}) - \prod(1 + MR_{i,t}),\ i = \text{GLC stocks},$$

Where ER is the market-adjusted cumulative return. Ri is firm monthly stock price return with the cash dividend reinvested. MR is the relevant monthly market or control portfolio return, and (a to b) is the time frame of one to five years. The three benchmarks are the equally weighted market return (EWMR), IPO matched control sample return, and the non-GLC portfolio return with the cash dividend reinvested.
* (**) denote statistical significance at the 10% (5%) level.

performance, does not have a significant impact on any of the equations of profitability, efficiency, output, and leverage.

4.4. Post-listing Return Comparison

As the last test, we compare GLCs post-listing stock price return with equally weighted market index, 50 top companies index, dividend adjusted market index, and the return of Non-GLCs adjusted for listing date. Actually, the one year lag of accounting data doesn't show privatized firms' future prospects and don't keep up actual performance. Hence, to examine the future impact of SIP on privatized companies we use stock returns as another

performance indicator. Earlier studies conducted by researcher confirm return improvement of privatized companies and show that the stock returns tend to be more positive in long run. For example, a study on 158 privatized firms in 33 countries in period of 1981 to 1997 which conducted by Megginson et al. (2000) show that the companies have excess return on all market indexes for all periods. To run the final test, at first we computed the firms raw stock returns up to five years then are adjusted with equally weighted market return benchmark (EWMR) as showed in first two major rows in table 4.6. At first glance we can see significant upward tendency in stock price return for 25 GLCs in all periods. For the first two period of one and two year, The EWMR adjusted return show no significant outperform but, for three to five years holding period we can see significant excess return for GLCs. Actually, the stock price return is 15,15 and 14 percent higher than equally weighted market index return for three to five years holding period respectively. The t-value of 3.1, 3.9 and 4.1 show all significant level of 5%. The upward tendency of EWMK adjusted return show that in long run the GLCs stock price return tend to outperform the market. When we look at “50 top adjusted” return in third major row of table 4.6, the results are similar for last two holding periods. The t-values of 4.1 and 5.2 for 4 and 5 years holding period show significant level of 1% for both. By the way, the downward tendency in third holding period bear no statistical significant. In regard to the GLCs comparison with Non-GLCs adjusted for listing date, GLCs underperform the Non-GLCs in first two holding periods. The t-value of 4.95 and 2.29 shows significant level of 1% and 10% for first and second period respectively. The third to fifth holding periods show upward tendency but lack to statistical

significance. Altogether, we can suggest that the GLCs tend to act as well as Non-GLCs in long run. The final major row in table 4.6 shows the statistics of GLCs comparison with dividend adjusted market index (DIVMR). The GLCs stock returns show upward tendency for first three holding periods and downward tendency afterward but, bear no statistically significance in any of holding periods. Overall outcome of this step are similar to Megginson et al. (2010) finding that the results could be quite different when we use various benchmarks, so it is very critical to use an appropriate benchmark. In general, there is very limited evidence that the stock price return of GLCs underperform the Non-GLCs stocks. By the way, to test this compatibility, we run the pooled regression equation (4). The Table 4.7 shows all outcome statistics. Model A. in Table 4.7 shows the result of the test without any control variables and Model B. presents the result of the test with size and leverage control variables. All of the dummy coefficient estimates of GLCs are positive and show better performance for GLCs in raw and adjusted returns but bear not significant level. From the overall results we suggest that, there is no significant evidence that the GLCs underperform their private counterparts. This held true for the raw sample as well as for the market adjusted samples.

The size coefficients are negative for raw, EWMR and DIVMR adjusted and are significant at 5 percent level that mean size has negative relation with the firm's stock returns. Leverage coefficients also are negative with no statistical significant level except for raw returns which is significant at 10%; that means leverage increase somehow follow by a decrease in stock return.

Table 4-7: GLCs and non-GLCs Pooled regression results

All firms (24 GLCs plus 62 non-GLCs)

Variables	Raw portfolio returns		EWMR adjusted		DIVMR adjusted	
	Model A	Model B	Model A	Model B	Model A	Model B
Constant	1.075	1.768	0.081	0.704	0.001	0.638
	(1.178**)	(8.572**)	(3.507*)	(0.001**)	(0.940*)	(0.005**)
DUM	0.004	0.018	0.059	0.078	0.053	0.075
	(0.927)	(0.719)	(0.203)	(0.111)	(0.258)	(0.128)
Size		-0.046		-0.043		-0.046
		(0.012**)		(0.016**)		(0.010**)
Leverage		-0.18		-0.13		-0.09
		(0.091*)		(0.196)		(0.383)
Adj. R2	-0.00	0.012	0.000	0.011	0.000	0.010
DW Stat.	1.624	1.329	1.759	1.272	1.745	1.273
Obs.	665	625	665	625	665	625

$$ER_{i,t} = \alpha_i + \beta_1 DUM_i + \beta_2 SIZE_{i,t} + \beta_3 LEVERAGE_{i,t} + \varepsilon_{i,t}. \quad (4)$$

Test period is 2001–2008. ER stand for market-adjusted returns, EWMR, equally weighted market return and DIVMR the dividend adjusted market index. The dummy takes value 1 if the firm is GLC and 0 otherwise. Firm size is measured as the natural logarithms of the total assets, which is adjusted by inflation factor.
* and ** denote statistical significance at the 10% and 5% levels.

stock price return with Non-GLCs, but we could assign this capability more to the market weakness caused by incompetency, inefficiency and so on than the GLCs performance improvement, Because the Non-GLCs have enjoyed the privatization advantages before listing and must showed even more efficiency and profitability with higher performance.