ABSTRACT

Our comprehensive study of 87 Iran companies, consist of 26 government-linked (GLCs) and 61 private firms (Non-GLCs) matched for listing date In Tehran Stock Exchange (TSE) during 2001-04, covering the period 2000 to 2008 shows significant positive relation between performance of privatized firms and share issue privatization. Controlling for the government ownership change effect after IPO, we suggest that performance improvement in GLCs after listing cannot be attributed all to privatization. However, there was some fairly conclusive evidence of GLCs' performance measures comparability with those of Non-GLCs that matched by listing date. Since the government linked companies also perform as well as market and industry averages in post-listing time horizon(up to 3 years), we argue that the performance of Iran's privatized state owned companies are comparable with private owned firms.

Taking the stock price return as a performance measure and choosing holding period of up to five years, over all findings show that stock price return of privatized GLCs are statistically equivalent or even higher in compare with Non-GLCs' and the market benchmarks' stock price return over various holding periods. Finally, from the facts that TSE lacks openness to powerful international competition and its well-functioning is under question, we suggest that this comparability of GLCs may be more attributed to market failure rather than their efficiencies which should be investigated.

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CHAPTER 1 − INTRODUCTION

Iran's Privatization plan was launched in late 1980s, only a decade after massive renationalization program which makes the Iran's experience unique. The reverse strategy through privatization was due to firms' inefficiency and their increasing dependency to government subsidies.

The world wide initial enthusiasm for privatizing the firms was based on this belief that companies in hands of private sector are superior to a government hand (see, for example, Shleifer, 1998; Dewenter and Malatesta, 2001). After the overwhelming success of the Thatcher government experience this interest was emerged and many countries have since engaged in privatization of SOEs. However, this enthusiasm also spread to universities, private and other institutions to study various aspects of this circumstance.

Empirical evidence provided by Megginson et al. (1994), Boardman and Vining (1989), (Choi, et al., 2010), and others, suggest that private firms are more efficient after initial share issue privatization, either in their short or long run experience. Some of these papers examine data from single-country, single-industry or small number of individual firms and the others employ multi-industry or multi-national samples. Nevertheless, Wortzel and Wortzel (1989), Caves and Christensen (1980), Kole and Mulherin (1997) and Patricia Bachiller (2009) in their studies support this idea that government linked companied could act as efficient as private owned firms. They point out several factors which had small relation with privatization but affect the performance. In fact, in privatization program a government due to several

considerations usually keeps possessions of the controlling shares of SOEs and seldom sells all to private sector. There may be legal constraint of the country behind that, as suggested by Bortolotti et al. (2002) or political reasons, as found by Perotti and Biais (2002). Partial ownership retained by government can have a positive effect even for economic reasons. The model suggested by Perotti (1995) shows that governments dispose a smaller portion of SOEs to privatize at the beginning. Hence, the market may receive this signal that the government not going to confiscate shareholders' wealth when the controlling stake of the privatized SOEs is held in state hands. In privatized SOEs through SIPs, a positive relationship was found between the stock returns and government ownership as showed in a study conducted by Boardman and Laurin (2000).

In this paper, we test two group of private and government linked companies of Iran over the before and after listing period. Anyhow, in addressing these essential questions that does the privatization improves firms' performance and are state owned enterprises necessarily inefficient, Iran's government linked companies provide a considerable case.

In view of questioning the truth or validity of such debate, we think this study can clear up these issues and adds value to the previous findings. By the way, in this study we made several comparisons; at first we compare the GLCs pre-listing performance measures with those of their post-listing to find if there is any improvement after listing. Then, we compare GLCs with Non-GLCs matched by listing period, market-average and industry-average on the basis of before and after SIP performance indicators to find if there is any

considerable enhancement. The results report significant improvement in GLCs performance following SIP in terms of profitability, efficiency and output; although, significant decrease in leverage. However, when we compare before and after listing performance proxies of GLCs against of those in non-GLC; no evidence were found that GLCs underperform the non-GLCs except for the efficiency which show lower for GLCs as long as controlled for GDP. Using stocks returns data, we found no evidence that the GLCs' stocks underperform the Non-GLCs' in their returns. This indicated that the market investors don't discriminate between GLCs and Non-GLCs stocks. Hence, we conclude that the GLCs performance is as well as private companies after SIP. This capability could be because of the well-functioning of GLCs. even so, the lack of Iran's market openness to intense foreign competition of capital markets is an important factor that must be considered. Nevertheless, share issue privatization (SIP) has positive impact on GLCs and improves profitability, efficiency, and output.

The remaining parts are arranged as follows: Chapter 2 presents concise literature about privatization. Chapter 3 explains the method which is employed in study, the hypotheses development and the data structure which is used for test. Chapter 4 explains and interprets the outcomes. Finally, the inferences and suggestions for future studies are presented in Chapter five.

CHAPTER 2 − THE LITERATURE REVIEW

The perceived success of privatization plan launched by the United Kingdom government in the early 1980s, changed the initial doubt about privatization to widespread great interest. The world has since witnessed governments' worldwide privatization program of state-owned enterprises (SOEs). The objectives to achieve were broad and fundamentally involve the improvement of microeconomic efficiency; generally: (1) improved efficiency in term of source allocation and productivity; (2) stronger role for private sector within the economy; (3) advanced financial health of public sector; and (4) generating revenue (Vickers and Yarrow 1988).

During the first decade of privatization program In the UK, more than £15 billion generated from the sales of assets as reported by Megginson and Netter (2001) and afterward exceed 69.6 billion of revenue for the government up to 2007[1].

From 2000 to 2007, the sale of state-owned assets reached $497.7 billion in OECD countries. Some developed countries including France, Spain, Japan, and New Zealand have engaged in significant divestment of governmental assets. For example, France privatized more than US$ 98.2 billion state owned enterprises from 2000 to 2007; while Germany's and turkey's privatization raised nearly 65.0 and 25.0 billion US dollar respectively at the same period. To illustrate the relevance of this policy, table 4.1 shows how the change in European state-owned enterprises shares in GDP,

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[1] Sources: www.privatizationbarometer.net.

grouped with income level in accordance with the OECD's classification, for the year 2006. Developing economies, such as South Africa and Nigeria and Transition economies, such as china and Russia have also followed privatizing the state owned enterprises significantly. By the way, only the first decade of privatization has generated trillions dollar for governments worldwide (Megginson and Netter 2001).

2.1. Economic justification for Privatization

The success of any organization depends on managing the employees to act in some ways that best achieves the corporations' objectives, whether be privately or state-owned. Within an organization, the agency problem arises when the interests of the agent are not fully arranged in a line with those of the owners and the principal doesn't have proper control over the employees' actions (Vickers and Yarrow 1988). Principal-agent relationship exists in both public and private sector where the objectives of principals and agents might differ. By the way, the ability to reduce this agency problem across the public and private sector varies. Private ownership Supporters argue that close supervising the organization by the private share holders through the capital market is likely to be more efficient than monitoring by the state officials with political considerations (Mitchell, 1988), because these debates may affect the firms' priorities in short or long run and consequently lead to those products and services that are not profitable. Economists argue that the agency problem is more probably to be overcome by private-owned enterprises than state-owned companies.

2.1.1. The Ownership Effect

Efficiency comparison of private owned versus state owned firms in previous empirical studies, which usually measured in terms of production cost and productivity, prove this idea that the private enterprises outperform their counterparts in state sector and show that the efficiency of state firms experience significant improvement after privatization. This proposition of superiority performance of the private companies over state owned enterprises supported by Jensen and Meckling (1976). They argue that the differences in the principal-agent relationship cause these divergences. The agency theory assumes that managers prefer their own benefit and in case of any conflict they favor their interests at the expense of the shareholders. However, there are several internal and external control mechanisms that control the private sector managers such as: rewards incentives, compensation, and market for managers (Cuervo and Villalonga, 2000). Ramamuriti (2000) argue that under government ownership, property rights are inadequately defined. He, like other theorists, focuses on the threat of bankruptcy, marketability of property rights, takeover, and preventing managers to seek their own benefits. In SOEs, lack control on these elements may cause the managers to have fewer tendencies to maximize profits and prefer to protect their benefits like prestige and power over the resources. Profit maximizing desire of private shareholders in a publicly traded corporation; push to act in a way that increases the value of their shares (Vickers and Yarrow 1988). Moreover, monitoring the firm's performance by the shareholders, through share value comparison in capital market, enable them to evaluate the managers' performance and execute the rewards system

in more accurate manner. Shareholders' power to change the directors by election right could lead to optimal managerial performance.

A share value reduction threatens the future employment of managers by reducing the firms' ability in fund raising by IPOs; in addition, takeover or firms failure also lead to bankruptcy and consequently job loss. Therefore, the share prices visibility provides incentives for managers to operate in some way that mitigate the bankruptcy threats to keep their employment. Additionally, the possibility of monitoring the manager performance through stock market lead to more effective compensation program, based on the outcomes, to persuade optimal effort. Furthermore, in SOEs the people (real owner) have two agents, management and government; whereas in private companies, there is only management that acts as agent; so, lower agent may mitigate agency problem in private sector. Furthermore, this possibility of buy and sell for private firms provide another incentive for management.

Two profit measures of share price return and profit which are main components of market for corporate control send additional signal to managers. takeover threat for a company implies this believe that the firm do not well and could be managed more efficient. In another word this situation signals that the management must be replaced. Thus, this threat of hostile takeover pushes the managers to act efficiently in order to maximize the returns and retain their jobs.

Without any signal about firms' revenues and share returns, any comparison about performance will not be possible and consequently cannot use any incentive system to promote employees for more efforts (which is the

case for public sectors). Additionally, lack of monitoring system may leads to Hiring and promoting the managers based on principals like political consideration instead of the ability measures (Harris Clive, 2003).

Lastly, based on short terms political consideration in public sectors, the priorities in actions may be changed especially during elections. The environmental instability and expropriating the resources will be the consequence of this kind of decision making process with respect to the objectives of firms. Furthermore, Managers may engage in empire building, by spending public resources in order to expand their power, and their own wealth at the expense of citizens (Smith and et al. 2001). In light of earlier mentioned perceived faults of state ownership, the exclusion of these considerations is the main benefit of privatization (Shleifer, Andrei 1998).

2.1.2. The Competition Effect

Competition is a further aspect that leads the firms to perform efficiently. The market force caused by competition leads a firm to be more customers oriented, uses superior technology and has greater flexibility when a new markets signal comes about. The impact of competition on firms, not only pushes them to survive better but also to try to overcome the competitors; ultimately a reduction on cost and price will be the consequence and is conducive to productivity. In competitive market inefficient companies need to improve their performance because the existent competitors or newcomers attempt to expand their market shares in expense of inefficient rivals. By the way, these potential benefits to provoke economic growth, efficiency, productivity and constant technology innovation are now well

recognized. This is because intense rivalry improves incentives for costs reduction, innovation and productivity improvement. Michael Porter (1990) argues that a competitive domestic market is conducive to a discipline which is major inducer to success abroad. Firms which experienced cost reduction, efficient operation and innovation in domestic market with intense competition have given an immense superiority when they expand into foreign markets. Furthermore, managers in a market with intensified rivalry are more vulnerable to risk of bankruptcy or takeover and these threats reinforce them to speed up the adoption of new technical knowhow (Aghion et al. 1999). Altogether, firms under such pressure caused by intense rivalry should enhance their technology to survive (cf. Porter, 1990). Finally, the idea that private ownership is more efficient than public ownership is less well supported by evidence or proof and there is also more argument about competition effect in less developed economy, given their inefficient market conditions. Even though, the issue that the competition improves the economic performance of developing countries is supported by the available empirical evidence (e.g. Evenett, 2005) , but there is still quite limited evidence confirming the economic benefits of a competitive market environment in developing countries.

2.1.3. Theoretical Conclusions

The advantage of private sector over public sector to deliver product and service more effective and efficient in a privatization program is well supported by theorists. Actually, the lack of stimulus in state to control SOEs closely implies lower quality and higher cost in production and consequently

state firms would not able to achieve their goals. The growing body of literature has documented huge losses that generated by the state inefficiency. The estimation of US$55 billion loss a year, in the early 1990s, is assigned to public sector of rail, water, road and energy (Gray, 2001) in developing countries.

Lack of incentives for SOEs to seek competitive advantage by initiating cost leadership and differentiation strategies lead us to a conclusion that the privatized firms especially in an intensified competitive environment should be superior to their SOEs counterparts. However, with regard to the anticipated advantage of privatization, Shleifer, and Vishny (1997) argue the strong motivation to cost leadership in private companies and suggest that this desire may dominates the firm's commitment to product quality. They conclude that privatization should occur when cost reductions do not have a significant impact on quality or can be restricted by contract or competition.

2.2. Empirical Evidence

There are many studies conducted by the researchers to answer these questions: if the firms in private's hand outperform the state-owned companies and does the privatization of government owned firms increase their performance? Much of those studies found that state-owned enterprises experience considerable improvements in efficiency measures after privatization even these results require intense scrutiny to find that in what extent privatization affect the firms' performance.

The evaluation of performance improvement follows by several concerns about the assessment procedure. The sample selection bias is one of those concerns that arise due to the governments' desire to increase public support for future programs by recording high returns for privatized firms. The study's results my affected by this selection bias and over estimate the privatization's benefits. In addition, the manipulation of financial data by the managements especially in international companies is a problem which showed in literature (Megginson and Netter, 2001). Additionally, in evaluation of the privatization consequence, there is no general agreement about performance proxies (i.e., cost ratio, share prices, output quality and quantity, staff retention, etc.) that should be used. The fact that governments objectives differ from private sector objectives (profit maximizing) and diverge in several areas are further complication. Increase in costs may appear in SOEs due to pursuing the other objectives. These objectives are not considered in performance analysis methods. Lastly, the deregulation and other initiatives that simultaneously come along with privatization have their own effect on firms' performance and elimination of these factors' impacts is difficult.

2.2.1 Privatization Methods

Most empirical evidences show that privatization bring outperform efficiency for privatized firms over SOEs; the question is that which method of privatization obtains the best performance? Public offering and (SIPs) are the most commonly methods used in privatizations. By these two methods share directly is offered to buyers. Share issue privatizations can be executed in the

method of selling all the shares at once or limited sales at first followed by seasoned equity offering or secondary equity offering (SEO) over time.

The difference between SIPs and asset sales tested in a study which conducted by Megginson, Nash, Netter, and Poulsen (2000). They examined 1992 privatized companies and found that 1225 of the firms under study have sold by direct asset sale and the remaining of 767 divested by SIPs. Another finding suggests that countries with inefficient capital markets use share issue privatization, probably in order to reinforce the development of their market. Furthermore, the companies with low profitability found to be sold by direct sales while the other profitable firms with huge amount of property and resources in hands used SIPs. The authors observed that the governments of countries with stronger property rights have more probably to use asset sale instead of SIP.

2.2.2. Firm Restructuring

Regarding the success of privatization plan, restructuring is another issue that considered by researchers; the question is whether the company should be corporatized before privatization or changed by the new share holders. In a study of Mexican firms Lopez-de-Silanes (1997) investigate the privatization in Mexico from 1983-1992. He suggests that one year delay in privatization due to restructuring diminished the government revenue of divestures. It means if the government had sold the firms one year earlier could raise more revenue while the change of management was the only restructuring process that happened. Finally, he concludes that

corporatization before selling reduces the government revenue received due to postponement.

2.2.3. Firms Valuation

In the course of privatization, the firms pricing is one of the crucial issues that a government encounter. To answer the best pricing question, in a study Lopez-de-Silanes (1997) observed that open auction which held by government increases government revenue from privatization because, this process will maximize the number of bidders. In SIP the process of pricing is more complex. While the governments need to make the decision about the way to offer the shares (i.e., offer the shares all at once or partial offering) they must also price the shares; Furthermore, the decision making of who should be permitted to buy the shares is another issue. Regarding the fact that SIPs are usually much larger than the IPOs, firms' valuation in SIPs is extremely important.

2.2.4. Efficiency in Non-transition Economies

The growth of productivity and reduction in cost of full-, partial-state owned and privately-owned airlines are examined by Ehrlich et al over the period 1973 to 1983. They found that private firms have lower cost and higher rate of productivity than the government owned companies in long run. Their study shows 1.7 to 1.9 percent decrease in cost while1.6 to 2 percent growth in productivity during a year and conclude that the transition from state hand to private sector results in both cost reduction and productivity improvement. Moreover, controlling for competition and regulation they suggest ownership

effect as the essential source of efficiency gains. At last, the study found that these efficiency improvements occurred in only fully privatized firms and company with mixed ownership didn't yield significant efficiency. The finding is in line with a study conducted by Boardman and Vining (Boardman and Vining, 1989).

In a later study on Canada's 500 largest non-financial firms, Vining and Boardman (1992) report considerable performance for private enterprises over state and mixed firms. Mixed enterprises were found to be more efficient and profitable than SOEs. In another study Galal et al. (1994) employed counterfactual technique which expresses what could or would happen under different circumstances of ownership. Using several welfare criteria, including employees, shareholders, government and consumers welfare, they conclude that productivity and performance improvement increase social welfare.

The leverage burden, profitability change and Labor intensity are also examined by Dewenter and Paul (2001) in a study of 500 largest private- and state-owned international firms. They found that privately-owned firms outperform their SOEs counterparts in profitability and have lower debt and Labor intensity. Notice that the higher leverage burden may refer to low constraint for SOEs while Labor intensity could contribute to union power.

In a Benchmark comparison study of 241 privatized firms from 42 countries in time horizon of 1981-2003, Megginson et al.(2010e) found that in long-run the performance results are highly sensitive to weighting methods, benchmarks, abnormal return calculation methods. When domestic indices are used as proxy for performance comparison the outcomes are the same as

previous studies and show outperform return in long run for previously SOEs, but when we use alternative indexes, the significant level drop or even we see no significant change. Altogether, their results prove earlier research results that show long-term excess performance of private IPOs versus various indices, but show lower significant level when alternative benchmarks are employed.

Pre- and post-listing performance comparison on 61 privatized SOEs of 18 developed and developing countries shows improvement in profitability, output and efficiency (Megginson, Nash, and van Randenborgh, 1994). In another study La Porta and Lopez-de-Silanes (1999) investigate the Mexican privatization and found not only performance of privatized firms improved after IPOs but also they do quickly as well as existing private companies in efficiency measures. Similar result found by Laurin and Bozec (2000) for Canadian National Railway with Canadian Pacific and Boles de Boer and Evans (1996) for Telecom New Zealand.

The results of studies on privatization effect are not always consistent with performance improvement in privatized firm, as an example Martin and Parker (1995) found that less than half of sample firms experience performance improvement after SIPs. In another research conducted by Patricia Bachiller (2009), the results show that an increase in firm efficiency is not attributed much to the privatization. The study analyzes efficiency of five of the biggest Spanish enterprises in period of 1984 to 2005; the conclusion doesn't show positive effect of ownership change in privatized companies. Because, even in those which experienced increase in efficiency, we cannot

assess that in what extent outcomes are related to privatization. These results are in line with those studies on other EU countries, which found limited evidence of performance difference between private and public enterprises (Borins and Boothman, 1985; Eckel and Vining, 1985). .

The Gerhard Glomm and Fabio Me´ndez (2009) studied 23 and eight countries for the time horizon of 1985–1990 and 1990–1997 respectively. They found that intensified competition can improve the benefits of privatization significantly, which is similar to Li and Xu (2002) findings. The samples are selected from the firms in developing and least developed countries hence we conclude that the results are applicable mostly to less developed economies.

2.2.5. Efficiency in Transition Economies

While the research findings show significant improvement in firms' efficiency, the studies outcomes from transition economies are vague. Much of them have concentrated on privatization failure to succeed in performance improvement. Frydman et al. (1999) have compared the performance measures of productivity, efficiency and profitability between state-owned and private-owned enterprises in Poland, Hungary and Czech Republic. They found firms in private hand outperform the state-run companies and when the ownership is in hand of outsiders the firm shows even more efficiencies. Black, Kraakman, and Tarassova (2000) in their study on Russian privatization conclude that the lack of property right and widespread fraud are the main factors behind privatization failure.

Another study by Miller and Tenev (2007) contrast experiences of CEEFSU and China and conclude that the difference could be explained by government's preferences in privatization program. Actually the government In China gave the priority to managerial reform, precisely adjusted incentives and local independency; while in Russia, mass privatization took the priority over firm restructuring without enough capacity in state to protect newly established property rights.

2.3. Privatization of Enterprises in Iran

Iran's Privatization plan was launched in late 1980s, only a decade after massive renationalization program which makes the Iran's experience unique, since most other countries privatize enterprises that have been in govemment domain for many decades if not centuries. The reverse strategy through privatization was due to firms' inefficiency and their increasing dependency to government subsidies.

Iran's industrialization plan was emerged during the Decade 1960-1969 when oil revenue increased steadily. During this period, the government owned and operated many of the major industries, while no privatization policy exists. Limited government plans, however, were prepared to help workers gain a small stake in ownership of some industrial and agricultural production units.

After the 1979 Revolution, nationalization of enterprises became popular as the government and quasi-government agencies and foundations took over many companies. Among these were banks, insurance companies,

and heavy industries, some of which belonged to the associates of the previous regime. Many of these enterprises soon became financially or operationally distressed, as they increasingly had to rely on government subsidies for survival. The resulting fiscal drag along with pressure from IMF and the World Bank were the main reasons for Iran's privatization initiative. An outline of recent Privatization efforts in Iran derives from official governments and press releases, follows.

2.3.1. The First Two Development Plans and Privatization process

The Islamic Republic of Iran Constitution sets forth the active participation in economic activities by all citizens. The First (five-year) Development Plan of the Islamic Republic of Iran, passed by the Islamic Consultative Assembly (Parliament) in 1989, urged the sale of some of the national-called for transfer of some of SOEs' control to the private sector (Valibeigi, 2001). The stated reasons include complying with the constitution, enhancing economic efficiency, and reducing the burden of running non-profitable operations. To implement the mandates of the Plan, the Council of Ministers drafted a preliminary privatization program in June of 1991 to identify target enterprises and develop a process for implementation and oversight of the transfer. Accordingly, 770 enterprises were evaluated and 391 were enlisted for possible privatization. The planned structure changed several times by The Islamic Consultative Assembly's in March 2, 1989 Legislation.

Privatization efforts continued during 1991-1993 period as some of the designated companies changed ownership via share issue privatization

method. The Tehran Stock Exchange (TSE) officials announced in May of 1993 that, among the 122 government owned companies admitted 19 were completely sold to private investors. Direct offering of shares by the SOEs constituted 75 percent of transactions on the TSE in 1991-92 as mentioned in Tehran Stock exchange annual report. Officials from the Organization of Iranian National Industries reported in May of 1993 that 12 million shares of companies have been sold through the TSE and an additional 10 companies are sold to private investors through auction. This, however, amounted to only a fraction of the enterprises considered for sale.

The Second (five-year) Development Plan, passed in late 1994, reemphasized the importance of privatization, requiring the government to accelerate this process by changing laws, providing financial and banking support, and completing the essential investment in infrastructure. The employees of targeted companies were to be given priority in purchasing shares of privatized firms. The proceeds from sales of SOEs were to be marked for financing the government's unfinished industrial projects. The new five-year plan also called for an expansion of the TSE, establishment of capital market institutions, and development of a net work for disseminating financial information to the public.

The privatization goals stated in the second five-year plan were quite ambitious, but the achievement record turned out to be dismal. The pace of privatization, which was show during the first five-year planning period, is slowed down further. The generated revenues were also far below what the officials had anticipated. Meanwhile, the two agencies most involved with

privatization, the Organization of Iranian National Industries and the Organization for Promotion of Ownership of Production Units came under sharp criticism from the deputies in the Islamic Consultative Assembly (Parliament) for mismanaging the SOE transfers. This led to the introduction of new protection, reorganization, and concentration of efforts to pursue privatization during the 1999-2002 periods.

2.3.2. Third Development Plan and Privatization Process

Share issue privatization through the TSE and private sale of enterprises through negotiation or auction were two main methods of privatization in Iran During the 1989-1999 periods. The negotiation method, which had led to bad transactions and reduced privatization revenues for the government, however, was banned by the Council of of Ministers in 2001. Third (five-year) Development Plan, passed in 2000 by the Islamic Consultative Assembly (Parliament), provided additional directives for an expansion of privatization programs, both in scope and scale, and the over-haul of the oversight process to safeguard against financial abuse. The plan authorizes that all SOEs whose operations in the public sector are deemed unnecessary be transferred to the private sector. To facilitate these large-scale transfers, first the government was to reorganize the SOEs under the umbrella of about 70 holding companies. The governance of these holding companies is required to be independent. The only enterprises to be kept in the government sector are those engaged in monopolistic activities.

To coordinate, supervise, and control the sales of public companies, the Third Development Plan mandates the creation of a seven-member "High

Commission of Divestiture" headed by the Minister of Economic Affairs and Finance. The Commission is charged with preparing an annual program of sale, confirming the list of companies to be sold, approving methods of sale, monitoring the sale process, and reporting to the Assembly (Parliament) on a semi-annual basis. To assist the Commission with its last, the government was authorized to modify the articles of associations of the Organization for Promotion of Ownership of Production Units. The Plan also requires that large companies be sold to the public (with company employees), and that small companies be sold to private entities. Revenues from the sales of these companies are to be allocated to the government treasury (48%). holding companies (50%) and a quasi-government organization (2%). these revenues must be use to restructure other SOEs, preparing them for sale.

As the first step in implementing the new plan, the Council of Ministers issued a decree in May of 2001 modifying the articles of associations of the Organization for Promotion of Ownership of Production Units. The new agency was named Iran's Privatization Organization (IPO). This financially independent organization has a corporation status and is affiliated with the Ministry of Economic Affairs and Finance. The main responsibilities of the IPO are to offer and divest shares of salable enterprises, to implement all other services necessary for execution of the program of divesting shares and management of govemment corporations, to implement policies sanctioned by the High Commission of Divesture, and to formulate proper Guidelines for promotion of the private sector. The organization's revenues come from fees charged for its services (IPO, 2002).

For the fiscal year 1380 (March 2001 through March 2002), the government revenues from the sales of SOEs were $50 million. For the fiscal year 2003, these revenues were projected to increase to $750 million. During the first eight months of the fiscal year, however, revenues reached $150 million or only 30% of their projection, suggestion that the revenue goals are perhaps too ambitious.

Nonetheless, achieving 30% of the projected revenue still amounts to a 400 percent revenue increase over a comparable period the prior year (IOP News Bulletin 1381/09/04 November 2002). The substantial jump is due to a major increase in the number of SOEs that were prepared for sale.

During the fiscal year 2003, the High Commission of Divestiture also approved the privatization of insurance companies and commercial banks. Asia, Alborz, Dana, and Iran are the first large insurance companies to be privatized in 2003. The major banks prepared to be privatized during this period include Tejarat Bank, Sepah Bank, Melat Bank, and Saderat Bank. Iran had 34 private banks in 1978, which were all nationalized after the 1979 revolution. Many of these banks have since been merged or dissolved, leaving less than one third in operation. The four banks identified for privatization make up about half of the Iran banking industry.

The privatization plan currently under consideration covers a variety of industries and institutions that historically have been owned and operated by the government. These include elementary and secondary education, mining industry, primary operations in the oil industry, airport management, mobile telecommunication, and organizations that never seen before.

2.3.3. Privatization Policies and Practices

During the past decade, Iran has used several privatization methods to transfer the ownership of its SOEs. Private sale through negotiation has perhaps been the most disappointing one. The use of this method was sharply criticized by the deputies in the Islamic Consultative Assembly (Parliament) for the resulting under pricing of assets and questionable transfers. This method has since been abandoned, except in especial cases.

Public sale of enterprise through auction or share issue privatization is the method currently used to transfer SOEs in Iran. In general, public sale of enterprises appears to have a good track record in Eastern Europe, and particularly in countries like Hungary where the private sector is relatively strong (Rotyis, J, 1994). This method has the potential to be successful in Iran as well because of Iran's long experience with free enterprise and the resolve of the current government to respect private ownership. In fact, many of the SOEs were private companies before being nationalized in 1979 and 1980. In addition, Iran has in place a system of property rights and a legal framework for corporate conduct. Therefore, public sale of companies through stock market (offering of shares) or auction appears to be the most appropriate method of privatization in Iran. The stock market has indeed become Iran's most frequently used privatization mode.

The TSE was established in February of 1967 to facilitate the allocation of savings to productive activities. The volume of trading was initially low, with government bonds comprising a major portion of the trade. For example, total trade increased dramatically from 124 million Rials in 1968 to 44 billion Rials

in 1977, while the number of companies listed on the exchange also rose from 6 to 102 during this period. Despite its enhanced TSE activity, the stock market never gained the trust of the investment community before the revolution. This was primarily due to the lack of public awareness, poor disclosure requirements, and easy access to bank credit by established enterprises. In 1978, the nationwide strikes reduced the stock market activities, and for many years after the 1979 Revolution, stock trading was either nonexistent or minimal.

The TSE was reactivated during 1989-90 periods, partly to implement the public sale of government owned enterprises. The volume of trade on the TSE skyrocketed from 64.7 billion Rials during the fiscal year 1990-1991 to 478.3 billion Rials. During the following twelve months, a growth of more than 700 percent. The stock market popularity has continued to grow, although at a more moderate pace. The TSE index (TEP1X) increased from around 5000 to 10,000 during the 2003. A similar increase in the transacted volume suggests that the stock market is gaining the much-needed acceptability by a public that has too few choices for long-term investment. Most of the recent activities on the TSE involve shares of the government-owned companies.

CHAPTER 3 − METHODOLOGY OF THE RESEARCH

3.1. Framework and Hypotheses

The principal concept behind the privatization is that the privatized companies' performance should be improved and at the macroeconomic level countries economy would be reinforced by privatization.

To evaluate this concept, many researches have been conducted and the outcomes show different results. Some studies like Bevan, Estrin, & Schaffer (1999) suggest that the privatization has no significant effect on firms' performance and some conclude that privatization affects positively the firms and improve the performance (Megginson & Netter, 2001). By the way, there are also other finding like Djankov & Murrell (2002) and Shirley & Walsh (2000) that prove confidential privatization effect on performance improvement.

The data set which used by different studies varies across different researches and this data variation may cause the incomparability of the outcomes. Moreover, most of them did not examine the change in ownership and board structure.

Theoretically, increasing revenue, spreading out the ownership, improving investment by use of foreigners' resources, reducing the bureaucracy burden of the state over firms and leaving the investment responsibility to private hands are some of the reasons that the government

on the basis of them try to privatize government linked companies (Nellis, 1991).

Most of the researches on privatizing state owned firms are related to the evaluation of performance proxies and financial indicators of privatized companies but, more recent studies evaluate the impact of governance change on efficiency improvement. This effect may be internal or external. Another aspect of studies examines the significance of liberalization economic reforms indicators on performance improvement after privatization.

The objectives of privatization in Iran as mentioned by the government include enhancing economic efficiency, reducing the burden of running non-profitable operations and increasing the firm's ability to perform efficiently. Hence, based on government objective and previous empirical studies, we employ Financial Ratio Analysis (FRA) and Partial Factor Productivity (PFP) methods to examine significant change in performance measures of efficiency, output, profitability, leverage of firms whether increase or decrease.

This expectation about the efficiency improvement of privatized firms is supported by Megginson et al. (1994) and other comprehensive studies like Antoncic & Hisrich (2003) and Boubakri (1998) that support the increase in the profitability indicators consist of return on sales and assets ratios for privatized firms. Thus, based on the purposes of Iran privatization program and literature, the first hypothesis is proposed as follow:

H1.Privatized firm's profitability increases after share issue privatization (SIP).

The fact that previous SOEs cannot relay much on government subsidies after privatization, plus tight competition in Market, push privatized companies to perform more efficiently and employ all their technological, financial and human resources to overcome successfully the market pressures (Kikeri, Nelly, & Shirley, 1992; Boycko et al., 1993). Improvement of firm's efficiency which is the most reason stated by the governments to privatize the SOEs has supported by several studies like D'Souza et al. (2005), Sun &Tong (2003) and D'Souza & Megginson (1999). As a consequence we propose the second hypothesis:

H2. Privatized firm's efficiency increases after share issue privatization (SIP).

Strongly desiring to be more successful than other firms, Higher motivations in compensation program and the financial opportunities in capital market may lead to output increase in privatized companies as suggested by Wei, Varela, D'Souza, and Kabir (2003) in their study on privatization in china, Boubakri et al. (2005) in their research on several developing countries, and La Porta and López de Silanes (1999) which examined the performance of privatized firms in Mexico. By the way, the support of government for those of product and services which are not economically reasonable and are subsided only for political purpose, do not exist anymore after privatization. This Reduction in the government support may cause a fall in companies' output (Boycko et al., 1993) hence the third hypothesis is:

H3. Privatized firm's output increases after share issue privatization (SIP).

Government linked companies can rely on government supports and state financial assistance when they face any strains or difficulties (Faccio, 2006). Megginson et al. (1994), Bortolotti, et al. (2001) in their studies describe that, after privatization the government guarantees in debt payment will no longer exist and if the previous SOEs encounter financial distress, it is more likelihood to become bankrupted. To prevent from bankruptcy rick companies may change their capital structure any consequently the reduction of leverage level in firms' capital could be expected. Based on above argument we propose the four hypotheses as follow:

H4. Privatized firm's leverage decreases after share issue privatization (SIP).

3.2. Sampling Design and Data Resources

The samples are selected from the companies that are listed in Tehran stock exchange due to availability and reliability of accounting data and financial report. the standard to select the government linked companies are based on the list of GLCs which obtained from Iran privatization Organization bulletin and website[2] issued in 2001, 2002, 2003 and 2004. From 2001to 2004, 141 firms are listed in Tehran stock market (TSE) and 54 of them which were banks and financial firms have excluded from the list. Therefore, the sample consist of 62 Non-GLCs and 25 GLCs, which are listed in Tehran Exchange Stock during this time horizon as showed in Appendix A. Hence, for all test of Non-GLCs and GLCs performance comparison we use the full-size sample of 87 companies. The time horizon for test runs from 2000 to 2008.

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[2] http://www.en.ipo.ir/

The before IPO accounting data for selected companies collected from their accounting reports bulletin issue by the companies. The after listing market and financial data are mainly retrieved from Financial Database of TSE. The firms' accounting data that were not available in the above resources are complimented from the companies' annual reports. Consumer price index (CPI) and gross domestic product (GDP) annual data are acquired from the Central Bank of the Islamic Republic of Iran and World Bank websites.[3] By the way, firms' financial data for one to two year before listing are collected from the Tehran Stock Exchange (TSE) data base and the required complementary information has captured from companies' annual reports and other sources.

3.3. Selections of Measures

Based on this assumption that the private companies run efficiently, we argue that If GLCs relatively perform well in case of efficiency and profitability; their performance proxies should be comparable to those of private firms (Non-GLCs) performance measures. In addition, if the objectives of privatization of GLCs are not related to efficiency enhancement, burden reduction of running non-profitable operations and increase of the firm's ability to perform efficiently, their performance improvement should be insignificant after SIP. Hence, base on this assumption we run our test to evaluate the change in GLCs performance. Basically, at first we test the GLCs'

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[3] org<u>www.cbi.ir/category</u>, <u>http://web.worldbank</u>.

performance change after SIP and then compare the before and after listing performance indicators of GLCs with those of non-GLCs.[4]

To compare the before and after listing performance change of GLCs, we followed MNR methodology which first used by Megginson, Nash and van Randenborgh (1994). By this approach we compare three-year average of performance measures of selected companies in post-listing period to the three-year average of those in pre-listing period.

Definitely, we examine performance changes by using the profitability, efficiency, output and leverage proxies. Three accounting ratios measured the Profitability: 1. return on equity (ROE): net income divided by total equity, 2. return on sales (ROS): net income divided by total sales, 3. return on assets ratio (ROA): net income divided by total assets; output proxy is Real sale (RS): Nominal total sales adjusted for inflation; The efficiency measures are: 1. total asset turnover ratio (TS/TA): total sales divided by total asset, 2. earning per employees ratio (NI/Emply): net income divided by number of employees, 3. Output per employee ratio (RS/Emply): real sales divided by number of employees and the leverage ratios are: 1. Debt to equity (TL/TA): total liability divided by total asset 2. Long term debt to equity (LTDE) which is long term debt divided by total equity (see Table 3.1).

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[4] All 25 went through partial share offering. Listing date and the state ownership portion on average are presented in Appendix A Panel A.

Table 3-1: Summary of testable prediction

Variables Table	Predicted Relationship
H(1) Profitability	
Real Net Income (NI) = Net Income ÷ CPI	$NI_A > NI_B$
Return on sales (ROS) = Net income ÷ Total Sales	$ROS_A > ROS_B$
Return on assets (ROA) =Net income ÷ Total assets	$ROA_A > ROA_B$
Return on equity (ROE)= Net income ÷ Total Equity	$ROE_A > ROE_B$
H(2) Efficiency	
Sales efficiency (SALEF) = Real Sales ÷ Employees	$SALEF_A > SALEF_B$
NI efficiency (NI/Emply) = Net income ÷ Employees	$NI/Empy_A > NI/Empy_B$
Asset Turnover (TS/TA) = Total Sales ÷ Total Assets	$TS/TA_A > TS/TA_B$
H(3) Output	
Real sales (RS) = Nominal sales ÷ CPI	$RS_A > RS_B$
H(4) Leverage	
Debt to assets (TD/TA) = Total debt ÷ Total assets	$TD/TA_A > TD/TA_B$
Debt to equity (LTDE) = Long-Term Debt ÷ Equity	$LTDE_A > LTDE_B$
Times Interest (TIE) = EBIT ÷ interest expense	$TIE_A > TIE_B$
Operating Cash Flow/total debt = (OCF ÷ TD)	$OCF/T_A > OCF/T_B$

The hypothesizes showed in first column (Hypotheses H(1)–H(4)) of the table. The second column shows definitions of variables. The third column details the predicted changes after privatization based both on theoretical background and the asserted objectives of every privatization program. Consumer price index showed by CPI. The index symbols A stands for after and B stands for before of privatization.

Share issue privatization raises complexity in some of the proxies and many companies in Asian countries involve in this issue and among them Iran is no exception. The Capital rising just before SIP is supported by Sun and Tong (2002, 2003) for Malaysia and China. ROA and ROE are two of those ratios that affected by this primary capital rising during privatization and make pre- and post-listing comparison of GLCs' profitability measures insensible. Therefore, for the GLCs pre-, post-privatization profitability comparison, we drop the ROA and ROE ratios and use only two other profitability proxies: the real net income (NI) and the return on sales.

The total debt to asset ratio (TD/TA) and long term debt to equity ratio (LTDE) which are classical proxies for leverage also affected by the primary

capital rising and encounter underestimating problem while ROE and ROA face with overestimating problem.

The primary capital raisings which happen in initial public offering (IPO) cause an increase in asset and equity of the firms. Hence, a decrease in classical ratios of total debt to total asset and lob term debt to equity will be the adverse consequence. These reductions in leverage ratios under estimate the firms' debt after privatization. To reduce this problem, we use another two ratios (TIE and OCF/TD) that are relatively unpopular but used as a proxy for debt measurement. TIE, the interest expense ratio as declared by Gibson (1995), indicates the company's capability to cover its long term liabilities and OCF/TD, the operating cash flow to total debt ratio point out that the company has this ability to pay its total debt by annually generated cash flow. Long term and total debt ratios indicate the leverage reduction when they become lower and show the firm's leverage increase when get higher; on the contrary to these ratios, OCF/TD and TIE show better debt state when get higher. Due to above mentioned reasons TS/TA ratio is dropped too and we use RS to employee and NI to employee ratios as efficiency proxies.

3.4. Data Analysis Techniques

At first, base on company listing year (year 0), we have chosen three years before and three years after IPO as sampling period then we calculated all performance measures for each company in every year as showed in table 4.2; then we computed each variable's mean of before listing and after listing period (before- listing: years -3 to -1 and after-listing: years +1 to +3). Note

that the listing year is excluded duo to this reason that, the company listing year includes both private and government ownership states.

We examined the significant change in performance indicators before and after SIP by employing the t-test for mean and Wilcoxon signed-rank test for median changes. The privatization effect may appear with some lag in time. Hence, we extended the post privatization time horizon up to five years to mitigate this problem. Furthermore, this time extension can also improve the robustness of our test.

As we hypothesized, we should have improvement in all firms' performance indicators of profitability, efficiency, output and leverage. The rejection of each hypothesis shows some evidence that the GLCs performed well in those areas before SIP or the effects of privatization on those performance measures were null.

Conversely, if the hypothesis is not rejected, there is some evidence of efficiency improvement in GLCs performance after IPO, but the debate of in what extent this improvement can be contributed to the privatization, is the issue which needs intense scrutiny.

In macroeconomic level there are several systematic factors which may affect the firms' performance and this problem can arise when we use the univariate test as explained by Dewenter and Malatesta (2001). Because, this kind of test can not eliminate the impact of economic factors and privatization effect on firms' performance changes and the change in performance measures may attribute much to those factors rather than privatization.

Hence, we run the following ordinary least square regression addressing above issue:

$$\Delta PP_i = \alpha + \beta_1 \Delta GDPGR_i + \beta_2 GOV_i + \varepsilon_i. \qquad (1)$$

This method also should be used to examine the changes in firms' performance as an alternative to the mean and median differences test. In equation (1), PP stands for performance measure while ∆PP, the average of three years post-listing minus the average of three years pre-listing of each indicator, show the difference in performance indicator and used as dependent variable. As usual the intercept captures the pre- and post-listing performance proxies' mean difference. Additionally, another two variables (∆GOV, ∆GDPGR) take into account. ∆GDPGR stand for change in gross domestic and capture the economic factors effect on performance change and ∆GOV is change in ownership of firms after privatization and control the ownership effect on performance. Again, we hypothesize that the firms' performance increases significantly after SIP. This hypothesis will be proved when both intercept, α, and the coefficient, β, in regression equation show significant different from zero.

The significant positive change after privatization shows only firm's performance improvement, but whether privatized GLCs perform efficiently after privatization or not and also if they were efficient even before SIP? To find an answer to these questions, we also run two another tests, with the same average of market indicators and the comparison of GLCs performance measures with the same average of industry measures. Explicitly, in first step we calculate the market average for all performance proxies corresponding to

pre- and post-listing period of all sample companies for each year then select all firms in the same industry that each GLCs is belong to and then calculate the industry average for all proxies corresponding to the company pre- and post-listing year in all periods. To do the comparison test, we compare pre- and post-listing average of firms' proxies with the average of market and industry indicators. If significant negative difference found between market- (industry-) average and GLCs before listing we conclude that GLCs are already inefficient in pre-listing. Furthermore, if the GLCs perform efficient after privatization, the difference between indicators in post-listing period will be no significant.

We run another test to compare Non-GLCs' and GLCs' performance after IPO. At first we select Non-GLCs Company that mach in listing years with GLCs and then compare the performance proxies. At this step we add another performance measure; market to book ratio (MBR) that is firm's market value to firm's book value, as Tobin's q proxy; then we compare post-listing GLCs performance indicators with those of Non-GLCs. To do this, we run a pooled regression as follow:

$$\mathbf{PP_{i,t} \; = \; \alpha \; + \; \beta_1 DUM_i \; + \; \beta_2 GDPGR_i \; + \; \epsilon_i} \qquad (2)$$

Where $PP_{i,t}$ stand for the performance measures for firm *i* in year *t*, in time horizon of up to 7 which start after listing year to 2008. The dummy variable (DUM) is set to capture the difference in performance. DUM variable value is 1for GLCs proxy and 0 otherwise. If the dummy coefficient is significantly positive the GLCs' performance in period of post-listing

outperform the Non-GLCs'. $GDPGR_t$ variable is the GDP growth for year t, which is control variable to eliminate the possible general economic impacts.

Next, we test the stock price return as a performance measure. The under pricing similarity in share issue privatization and private initial public offering is reported in Jones et al. (1999) and Dewenter and Malatesta (1997). To examine the share price performance, In a study across various countries Megginson et al. (2000) and Boardman and Laurin (2000) report positive stock price return in long run for privatized companies. Hence, we compare the GLCs' post-listing stock returns with those periods of Non-GLCs and market stock price return from one to five years. The annual return of stock price is computed by averaging the monthly compound returns and then we run the following equation to calculate the market-adjusted returns:

$$CR_{i(a\_b)} = \prod(1 + R_{i,t}) - \prod(1 + MR_{i,t}), \text{ a=1 \& b=1 to 5} \qquad (3)$$

Where market proxy that used is (EWMR); CR stands for cumulative return adjusted by market return; R is monthly stock return; MR is the monthly market return; i = GLC stocks and t is the time period up to five years.

To examine superiority return of privatized GLCs, Barber and Lyon (1997) suggest the method of GLCs' stock price return comparison with a control sample stock return. Hence, in our test we select Non-GLCs as control sample and use following pooled regression to run our test:

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

The excess annual stock price return is showed by $ER_{i,t}$ where i stand for firms and t for year. DUM is the GLC dummy variable as defined before, is used to take the probable GLC and Non-GLC stocks difference. The insignificant difference shows that the GLCs efficiency are as well as Non-GLCs. SIZE = ln(TA), is used to eliminate probable impact of size as suggested by Fama and French (1992). The explanatory power of debt to equity ratio over stock returns is also documented by Barbee et al. (1996) and Bhandari (1988). Hence, we introduced the debt–equity ratio (LEVERAGE) to control such a one effect.

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

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

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.

CHAPTER 5 − CONCLUSION AND RECOMMENDATIONS

The investigation of Iran's government-linked companies is interesting and among the countries that have privatized their GLCs, Iran privatization experience is unique. This uniqueness comes from the reverse policy of renationalization to privatization only a decade after the bigining. Iran's GLCs reform has been underway for more than 20 years, but yet comprehensive evaluations on privatization success are limited. In our study on Iran SIP firms we tent to fills this void and also test the robustness of previous research on the privatization performance.

To compare the performance of privatization SIPs, we selected all non financial and investment eighty-six companies that listed in TSE covering the period 2001 to 2004. Our study of 25 Iran GLCs in time horizon of 2001-2008 shows improvement in profitability, efficiency, and output measures upon share issue privatizations which are all statistically significant. By contrast, we found leverage improvement in the privatized GLCs that means liabilities are reduced after SIP. The results are in line with Boubakri, Cosset, and Guedhami, (2005), Djankov and Murrell (2002) and Megginson and Netter, (2001) findings that report significantly improvement in operating performance of privatized firms after IPOs.

To go further, we run another test to examine possible effect of change in ownership and general economic factors. Controlling for changes in GDP

growth and government's ownership, the cross-sectional regression give completely different results.

Profitability, efficiency and output indicators that showed significant increase become insignificant in relation with ownership and GDP change. The results are in line with previous finding by Martin and Parker (1995) that point to specific factors which may affect performance but have little to do with privatization. Altogether, we can suggest that the improvement in performance could not be attributed much to the ownership change and there are particular factors that should be evaluated.

To find whether privatized GLCs in Iran were operating relatively efficient before privatization or not, we compared the before-listing performance of GLCs with the market and industry index. The finding shows that GLCs efficiency is lower than the industry and market average. When we compare GLCs with market average in post-listing time horizons of three to five years, the performance proxies show no significant difference except for ROA which is higher for GLCs. The leverage measure show same as pre-listing result. The results are relatively the same when GLCs performance variables compared with industry benchmarks.

Finally, we compared the performance of GLCs and Non-GLCs group matched by listing date and industry because, if the GLCs are relatively efficient, their performances should be similar to Non-GLCs'. The results indicate that, there is no significant difference in profitability performance between the GLCs and the non-GLCs. In efficiency the GLCs show lower

performance than Non-GLCs. This advantage in efficiency may be due to this fact that Non-GLCs benefited from privatization even before listing.

Taking the stock price return as a performance measure, we found that the GLCs' market-adjusted returns show more significant outperform for three to five years holding periods. Also, the GLCs' EWMR adjusted returns show an upward tendency as the holding period increases. Altogether, we conclude that in long run the GLCs stock price return tend to outperform the market. In regard to the GLCs comparison with Non-GLCs adjusted for listing date, GLCs underperform the Non-GLCs in first two holding periods with high significance level for first year. All in all, we can suggest that the GLCs tend to act as well as Non-GLCs in long run. When GLCs compared to the mean returns of the dividend adjusted market index, there are not statistically significant evidences in any of the five holding horizons. On the whole, we find that not only the GLCs don't underperform the market portfolio and the portfolio of Non-GLCs over various investment horizons of three up to five years but also tend to outperform the market in long run.

The cross-sectional regression equation shows insignificant relation between Profitability, efficiency and output improvement and ownership change. The results are in line with previous finding by Martin and Parker (1995) that point out particular factors which might have affected performance but had little to do with privatization. Evaluation of these factors relation with firms' performance proxies could help to build a farm work that helps companies' performance improvement without huge privatization program which is especially useful for developing countries.

comparing the performance of privatization IPOs with multiple benchmarks brought different results which are in line with Seung-Doo Choi, Inmoo Lee, and William Megginson (2010) study that found stock performance results are very sensitive to benchmarks and the performance of privatization IPOs show different outcome when compare with multiple benchmarks. This variety in results faces the researches' outcomes with the problem of ambiguity especially when local benchmarks are used and the market is not efficient. By the way, implementation of international benchmarks and especially efficient market benchmarks can improve the robustness of the research findings.

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