

Ownership Structure and Firm Performance: The Case of Jordan

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ملخص الدراسة

تهدف هذه الدراسة الى اختبار أثر هيكل الملاك على أداء أكبر (50) شركة صناعية مدرجة في سوق عمان المالي – والذي يعتبر من الأسواق المالية الناشئة – خلال الفترة من 1996 ولغاية 2002. ان مشكلة الدراسة تضيء الأهمية للبحث باعتبارها من الدراسات النادرة التي بحثت الموضوع باستخدام بيانات دو لة منفردة بعينها . بعد تحييد متغيري حجم الشركة و النمو في المبيعات، أظهرت النتائج باستخدام (OLS) تأثير تركيز ملكية الشركة و جنسية هؤلاء الملاك على الاداء مقاسا بنسب السوق (القيمة السوقية الى القيمة الدفترية)، بينما يصبح هذا التأثير سلبيا ودون أن يكون ذات دلا لة احصائية عند استخدام المؤشرات المحاسبية (العائد على الاصول) كمتغير اقياس الاداء.

Abstract

This study examines the impact of ownership structure on firm performance in 50 of the largest Jordanian Industrial Companies (JIC) listed on Amman Stock Exchange (ASE), one of the emerging markets, and observed these firms over the period 1996-2002. This issue has not yet been subjected to direct empirical investigation using a single developing country sample, which provides the importance of this study. Controlling for capital structure, firm size, and sales growth, ordinary least squares regression results suggest that change in firm performance over the period considered is a function of firm differences in ownership concentration and identity. The study finds a nonlinear and significant effect of ownership concentration on market-based measure (shareholder value estimated by market-to-book-value of equity) but negative and not significant effect on accounting-based measure (return on asset) of JIC. Furthermore, the study supports the hypothesis that the ownership identity has importance implications for corporate performance, only when using market-based measure.

Key words: Ownership structure; Ownership concentration; Ownership identity; Performance

1. Introduction

The concept of expense-preference behavior is part of a much larger view of how modern corporations operate, called *agency theory*, which analyses relationship between firm's owners – stockholders- and its managers, who are agents of the owners. Agency theory explores whether mechanisms exist in a given situation to compel managers to act to maximize the welfare of their firm's owners. If a firm's owners do not have access to all the information its managers possess, they cannot fully evaluate how good management has been at making decisions. In recent years, a firm ownership is increasingly being spread out, and the dominance of individual stockholders appears to be decreasing. These two trends are likely to worsen any agency problems that may be present.

Previous studies emphasis the agency theory as a link between ownership structure and firm performance (Krueger and Yoo 2001; La Porta et al. 2002; Lemmon and Lins 2002). Theses studies examined and generally supported the prediction of agency

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theory that the separation of ownership and control provides managerial incentives for diversification, but the larger shareholders can pressure managers to reduce diversification and increase firm performance. Specifically, it is argued that shareholders wish to maximize profits while managers may prefer various self-interested, non-profit-maximizing strategies and that concentrated ownership obviates the problems created by these divergent interests. Following from this logic, the core hypothesis in the separation of ownership and control literature is that concentrated ownership is associated with higher performance.

There is much literature devoted to an analysis of the various constraints on managerial discretion and their impact on the power of top management classified as internal or external (Finkelstein 1992; Gedajlovic and Shapiro 1998; Joh 2003). Internal constraints largely emanate from the Board of Directors and are exercised on behalf of shareholders. Internal constraints reflect the composition and power of the Board of Directors including the ease by which shareholders can appoint or remove Board members and the rules governing voting. The most widely noted external constraint is the market for corporate control (Jensen 1989), but other market-related constraints arise from managerial labor markets (Rose 2002) and financial markets (Beak et al. 2004; Claessens et al. 2002; Mitton 2002; Thomsen and Pedersen 2000). In the case of financial market for corporate control, managers who do not maximize returns to shareholders will see their firms acquired and themselves displaced in favor of more proficient managers (Jensen 1989).

Studies examining the relationship between ownership structure and firm performance started from 1930s and continued to present time. In a review of these studies, it has been argued that the majority and some support for the managerial hypothesis that owner controlled firms should report higher profitability measures than manager controlled firms (Short 1994; Vining and Boardman 1992). It has to be mentioned, however, that most of the studies cited by Short used U.S. data and most of these have found that concentrated ownership is associated with higher performance. However, few studies examining non-U.S. firms were cited by Short and among those that were supporting evidence decidedly more mixed. In particular, the cited evidence from France and Germany did not indicate strong support for the hypothesis that concentrated ownership is positively associated with higher performance. Such a difference could be related to the national system of corporate governance where government ownership is more common in Continental Europe such as France and Germany than the case in the U.S. or the U.K. In this respect, it could be argued that there are two general systems of corporate governance. The first one associated with the U.S. and the U.K. characterized by active market for corporate control and relatively passive shareholders, Boards of Directors that are not always independent of managers while the second one associated with Continental Europe and Japan characterized by limited markets for corporate control, Boards of Directors that are more independent of management, and associated with coalitions of active shareholders - often companies, government, or financial institutions. Therefore, it could be argued that ownership structure-performance relationship may not be applicable in all national contexts.

Past studies, highlighted the importance of ownership structure in the development of financial markets (Johnson et al. 2000a; La Porta et al. 2000; La Porta et al. 1999), ownership structure influence on firm performance (Krueger and Yoo 2001; La Porta

et al. 2002; Lemmon and Lins 2002), ownership structure influence on firm performance with diversification strategy as an important intermediary variable (Aleson and Espitia-Escuer 2001; Hoskisson et al. 1994; Lane et al. 1998), and corporate valuation by capital markets (Beak et al. 2004; Claessens et al. 2002; Mitton 2002; Thomsen and Pedersen 2000).

For example, (Johnson et al. 2000a) show that countries with weak legal protections suffered greater rate depreciation and sever stock market declines during the Korean crisis. Mitton (2002) shows that ownership structure measures, such as high disclosure quality and ownership concentration, affected stock market valuation during the Korean crisis. Lemmon and Lins (2002) show that, during the crisis, firms showed low performance when their controlling managers had more control rights than ownership rights and no significant ownership effect on the changes in Tobin's Q used as a performance measure. Joh (2003) shows that firm's profitability is lower when the controlling family's ownership is lower, controlling for firm, industry, and macroeconomic effects. Likewise, firm profitability was low for firms when the difference between control rights and cash flow rights was high. The paper also provides some evidence of nonlinearity of ownership effects on firm profitability. In addition, resources transferred from firms in business groups to affiliated firms lowered firm profitability. Krueger and Yoo (2001) show that corporate performance has deteriorated over time. They also showed that the rate of return on assets of Korean manufacturing sector has been lower than that of other countries such as Japan, Germany, the U.S.A, and Taiwan.

Most of the above studies have focused on firms from leading developed countries and evidence on this relationship for more recently developing countries does not exist. These latter countries have a significant potential, and therefore it would be interesting to analyze the effect of ownership structure on firm performance. This paper attempts to deepen our understanding of the effect in an emerging market in a country like Jordan which, to our knowledge, has not been focused on before over a period experienced dramatic influences by both national and international levels. Moreover, this study examines the effect of ownership identity on firm performance, a dimension has been focused only by very few researchers (Thomsen and Pedersen 2000), although it has the support by others who point the importance of such variable (Gedajlovic 1993; Nickel et al. 1997; Short 1994). Thomsen and Pedersen (2000) argued that whereas ownership concentration measures the power of shareholders to influence managers, the identity of the owners has implications for their objectives and the way they exercise their power, and this is reflected in company strategy with regard to profit goals, dividends, capital structure, and Sales growth.

This paper, therefore, has three principal differences with respect to previous studies, which make reference to the way the variables are measured highlighting the uniqueness of the study. First, the ownership identity variable in the way it has been estimated and explored is new to the literature in both developed and developing countries. Secondly, we use accounting and market-valued performance measurements in a joint manner where previous studies have used either accounting or market-valued measures. Although these measures are interrelated, they reflect different aspects of performance. Thirdly, this issue has not yet been subjected to direct empirical investigation using a single developing country sample.

Generally speaking, the above empirical findings suggest that ownership structure influence on a firm's performance depends on the general systems of corporate governance. Therefore, the prediction of such influence in Jordan will rely on the features of such system and to what extent corporate governance has changed over the years. Such an exploration will highlight the variables related to the ownership structure, which influence the companies' performance in a developing country like Jordan, as a requirement for economy improvement and development.

The purpose of this paper is to determine empirically whether Jordanian industrial companies' performance influenced by ownership structure. In the second section literature support and hypotheses developed is outlined, where in the third section data and sample selection procedures are presented. Empirical model, results and discussions, summary and conclusion are given in the fourth, fifth, and sixth sections, respectively.

2. Literature Support and Hypotheses Developed

After controlling for the variables capital structure, firm size, and sales growth, we discussed the relationship between firm performance as a dependent variable and ownership concentration and identity as independent variables.

Ownership structures and performance

Ownership structure. Agency theoretic research has studied both the behavioral consequences of the conflict between owners and managers, especially diversification strategy, and the control mechanisms that induce managers to maximize profits. In studies of diversification strategy, top managers are assumed to have a personal interest in diversification (product or geographical) at the corporate level because of risk aversion by minimizing for instance the effect of adverse changes in goods and factor prices (e.g. interest rates, wage rates, raw material prices), empire building, obtaining tax advantages, avoid supply and demand variations across international market areas, and obtaining cost advantages by configuring each link of their value-added chain location that have the least cost. Thus, global market diversification endows firms with operational flexibility that serves to reduce performance fluctuations (Bethel and Liebeskind 1993; Denis et al. 1998; Hoskisson et al. 1994)). The other stream of corporate governance studies is more concerned with control mechanisms that induce managers to maximize profits (Jensen 1989).

It is argued that ownership structure is an important factor in determining firm value since concentrated ownership-managers minimizes the agency problem that arises from the separation of ownership and control (Krueger and Yoo 2001; La Porta et al. 2002; Lemmon and Lins 2002 ; Rose 2002; Thomsen and Pedersen 2000), and therefore predicts a positive relationship between firm performance and ownership concentration.¹ The standard assumptions are that owners desire to maximize profits

¹ For empirical studies supporting such argument see (Bae et al. 2002; Barclay and Holderness 1989; Cubbin and Leech 1983; Gedajlovic and Shapiro 1998; Joh 2003; Johnson et al. 2000b; La Porta et al. 2002; Mitton 2002; Shleifer and Vishny 1997; Thomsen and Pedersen 2000), but not by others (Bergstrom and Rydqvist 1990; Cubbin and Leech 1983; Demsetz and Lehn 1985; Gerson and Barr 1996; Holderness and Sheehan 1988; Pedersen and Thomsen 1999).

(or shareholder value) whereas managers have other interests such as high compensation, low efforts levels, expense preference, empire building, etc.

As the control-ownership disparity increases, controlling shareholders appropriate more firm resources. Thus, conflicts of interest among shareholders can lower firm performance (Joh 2003). It could be argued, therefore, that firms with high ownership concentration have better performance since disparities among ownership-managers can be minimized. However, since recent changes in companies laws around the world have tended to allow more takeover, it could be argued that agency problems will diminish over time as businesses faces intense national and international competition.

One way to reduce costs from agency problems it to develop better systems from monitoring management behavior and strong management incentives to follow the wishes of the stockholders. In the long run, however, many economists believe that agency problems can be reduced by efficient labor and capital markets (Rose 2002). Labor markets can reduce management's tendency to feather its own nest at the expense of the stockholders by rewarding better-performing managers with higher salaries job opportunities. Capital markets can help eliminate bad managers and poor firm performance with the threat of corporate takeovers which could lead new owners to fire existing management and lowering the stock price of poorly managed firms.

Ownership Identity. The standard assumption is that each of the ownership categories has different objectives with implications for corporate strategy and performance (Edwards and Nibler 2000; Morck et al. 2000; Thomsen and Pedersen 2000). This section makes a first attempt at modeling owner preferences by analyzing differences between a set of ownership categories. Recent empirical research has focused on the question of whether the relationship between ownership and firm performance holds for all countries and whether the identity of the owner does matter (Gedajlovic and Shapiro 1998; Thomsen and Pedersen 2000).

For example, compared to investor-owned companies to undertake ambitious investment programs to exploit economies of scale and are more likely to pursue niche strategies related to flexibility or differentiation (Thomsen and Pedersen 2000). For the same reason it is regarded that the separation of ownership and control could be seen as an essential part of the enduring logic of industrial success in exploiting scale economies (Chandler 1990). Institutional investor ownerships are therefore likely to imply advantage in terms of cost of equity capital and risk aversion. They are specialized owners characterized by portfolio management and active national and international relationships, which leads to expect a positive impact of institutional investor ownership on firm performance.

It could be argued that firms with higher foreign ownership concentration experience better firm performance especially in developing countries where firms very much in need for managerial expertise as well as lower cost of equity capital funds, issues might be resolved efficiently when the foreign ownership exists as part of the ownership firm structure. Khanna and Palepu (1999) found that as emerging markets integrated with global economy, foreign investors serve a valuable monitoring function. Mitton (2002) found that firms with higher foreign ownership concentration experienced better stock price performance where Beak et al. (2004) found that firms

with larger equity ownership by foreign investors experience a smaller drop in share value, where firms with higher disclosure quality and those with access to alternative sources of external financing suffer less from the Asian crisis.

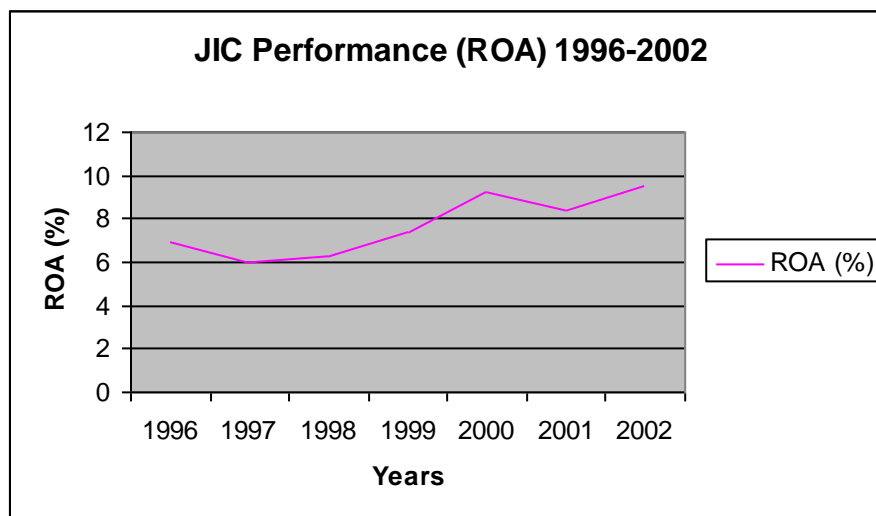
With regard to government ownership influences on firm performance, literature suggests that governments are likely to pay attention to political goals such as output prices and employment highlighting the fact that government ownership are nonprofit-maximizing owners and are therefore expected to be low performers in terms of conventional performance measures (Laffont and Tirole 1993; Shleifer and Vishny 1997).

Some recent research has placed particular emphasis on the role played by banks and other financial institutions in the governance system (Edwards and Nibler 2000; Gedajlovic et al. 2003; Morck et al. 2000). In support, previous empirical research finds a positive performance effect of bank ownership (Hoshi et al. 1991; Hoshi et al. 1990b). Gedajlovic et al. (2003) examine the relationship between ownership by financial institutions and the performance of Japanese companies during the period 1981-1991. Their results indicate that on balance, ownership in the hands of financial institutions improved the performance of Japanese firms. One would expect a positive relationship between firm performance and financial ownership concentration, therefore.

Thomsen and Pedersen (2000) argue that the identity of large owners— family, bank, institutional investor, government, and other companies- has importance implications for corporate strategy and performance. Compared to other owner identities, they found that financial investor ownership associated with higher shareholder value and profitability, but lower sales growth. The relationship between ownership concentration and performance found where nonlinear so that ownership concentration beyond a certain point leads to entrenchment and has adverse effect on performance, a finding supported also by (Morck et al. 1988). Gedajlovic and Shapiro (1998) argued that a nonlinear relationship is suggested if at low levels of ownership concentration the costs of monitoring exceed the benefits, while the reverse is true at higher levels of ownership concentration. This argument suggests that the relationship between ownership concentration and profitability may initially be negative, but will become positive as concentration increases.

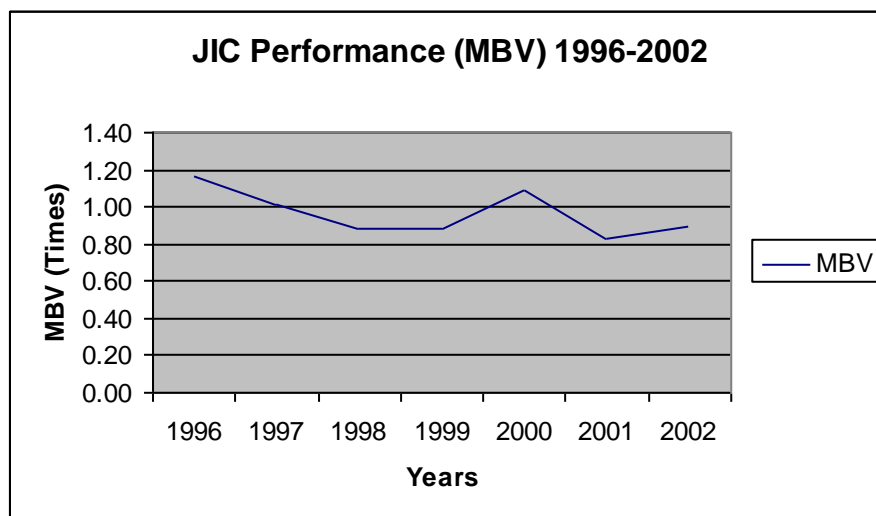
In an emerging market in a country like Jordan where companies suffering from bad management and shortage of expertise in adopting the modern managerial approaches in running their businesses which might has minimized the potential and expected utility of Jordanian government investment regulation reforms started since 1997, ownership identity might has its influence on firm's performance. Figure 1 illustrates JIC included in this study average performance pattern estimated by Return on Assets (ROA) over the period 1996-2002.

Figure 1: JIC Performance (ROA) 1996-2002



Using financial market-based measure, which could be argued as more realistic approach in the modern financial markets revolution, however, Figure 2 illustrates JIC included in this study average performance pattern estimated by Market-to-Book value (MBV) over the period 1996-2002.

Figure 2: JIC Performance (MBV) 1996-2002



As it can be seen from Figures 2 that, over all, JIC performance were decreasing considering the financial market-based measure (MBV), while considering the accounting-based measure (ROA), JIC performance were increasing. Such conflicting results might be related to the regulations adopted in the country concerning the financial reporting, which could be characterizes by being loose, vague, and not activated properly.² Therefore, it might be more realistic to accept the fact that JIC performance is decreasing since the financial market-based measure will be more realistic variable in such an emerging market. Such an argument supported by using

² Although Jordan has adopted the IFRS since 1998 and the auditor reports confirming that Jordanian companies adopting the IFRS, none of those companies listed on ASE considered as a company fully adopting the IFRS by the IASC (www.iasb.org).

the sales growth as another accounting-based measure over the same period, not reported, showing that it is failing down.

Firm performance as a dependent variable used in models which analyze the ownership structure-performance relationship, in general, have been either accounting-based measures (Hitt et al. 1997; Tallman and Li 1996) or market valuation measures (Morck and Yeung 1991). These measures, however, although interrelated reflect different aspects of performance with their respective advantages and limitations.

It could be argued that accounting measures provide a historical record on the past and present situation of a firm; that is to say the returns from resources employed by the firm when carrying out activity. On one hand, many studies used only accounting measures to predict bankruptcy or financial distress (Hoshi et al. 1991). Joh (2003) argued that accounting profitability is likely a better performance measure than stock market-based measures, while (Mossman et al. 1998) showed that a firm's accounting profitability is more directly related to its financial survivability than its stock market value. On the other hand, previous studies indicate that the use of accounting measures present a series of difficulties or limitations, from amongst which the following should be highlighted: 1) they exhibit differences between the accounting criteria used by firms (e.g. the method of depreciation), which making comparison difficult; 2) they do not allow adjustment of differences in performance for differences in the risk supported by the firms; and 3) do not reflect all the opportunity costs supported by the firm.

On the other hand, market measures provide information on the value of firm as a going concern. It could be argued, however, such data are not themselves free of problems given that some markets may present inefficiencies or volatility on some occasions. Previous studies shown some market inefficiencies not only in developed countries (Conrad and Kaul 1998), but also in developing countries (Bulter and Malaikah 1992; Kim and Singal 1997).

Joh (2003) suggests that the results are robust regardless of the choice of performance. Others argued that the limitations of each measure might be through their joint use (Wernerfelt and Montgomery 1988). In this study, therefore, performance measures were estimated using not only accounting-based measure (e.g. ROA), but also stock market-based measures (e.g. MBV) with the aim of completing the analysis with all the dimensions of the business performance and consequently reflecting greater information on corporate performance.

We believe that using such method makes the research new in the ownership structure and its influence on firm performance literature. Return on assets estimated as the ratio of net income to total assets, where market-to-book value of equity estimated by dividing a firm market share price to the firm share's book value. The two measures are not significantly correlated. Pearson correlation coefficients are well under 40 percent.

For empirical testing we argue that the effect of ownership structure and identity should be controlled for variations in capital structure, firm size, and sales growth

issues argued by previous studies (Gedajlovic and Shapiro 1998; Joh 2003; Thomsen and Pedersen 2000).

Control variables

Capital structure. It is included as a control variable in the regression models for two reasons. First, there is a large body of the literature indicates that a firm's capital structure influences both investment decisions and firm performance (Harris and Raviv 1991). Second, capital structure may be a constraining force on the discretion of managers (Jensen 1989). Since the focus of this paper on the effects of ownership structure on performance, the potential constraining influences of capital structure needs to be controlled for. Arnold (1998) argued that at high gearing levels there is an increased probability of the firm not only failing to make a return to shareholders, but also failing to meet the interest cost obligation, and thus raising the likelihood of insolvency. It has been reported, moreover, that firms with higher level of debt were less profitable, reflecting the costs associated with debt financing (Gedajlovic et al. 2003; Lincoln et al. 1996).

The study concerns how the performance has responded to the changes in firm's leverage. Leverage can be estimated straightforwardly by using the leverage (D/E). In practice, however, deciding the leverage is more difficult. For example, companies are financed out of a mixture of share capital, retained profits and borrowings. Borrowings may be long term such as debentures, or short term such as bank borrowing. In addition, the company may have set aside all sorts of provisions (e.g. for taxation) that it expects to meet sometimes in the future. From an ordinary shareholder's point view, even preference share capital can be classed as borrowings, because the preference shareholders will have priority over ordinary shareholders, both in respect of dividends and upon liquidation. In this study, all borrowing has been included because there is an issue of whether short-term debt is a revolving facility (constantly being renewed).

Many studies have been investigated the correlation between leverage and some factors. According to Milton and Raviv (1991), the consensus is that leverage increases with fixed assets, non-debt tax shields, investment opportunities, and firm size and decreases with volatility, advertising expenditure, the probability of bankruptcy, profitability and uniqueness of the product. Tangibility of assets, the market-to-book ratio (usually thought of as a proxy for investment opportunities), firm size, and profitability have shown up most consistently as being correlated with leverage in previous studies (Long and Malitz 1985). Lang and Stulz (1992) and Opler and Titman (1994) find that firms that maintain a high leverage ratio and have specialized business lines tend to experience more difficulties during economic downturns and increasing default risk, a finding argued by (Joh 2003).

It could be concluded that past empirical studies has shown mixed effects of leverage on firm performance. While leverage influences performance estimated by profitability measures where positive (Hurdle 1974), it was negative in other studies (Gale 1972). Since highly leveraged firms would have more difficulty obtaining financing during a suffering time, we would expect such firms to experience a larger drop in its performance and vice versa.

There are several ways of calculating leverage. Theory suggests, however, that using the market value of the variable debt and equity is preferable assuming that it could be observed (Raghuram and Zingales 1995). But, in reality the debt variable is not observable because it is not actively traded. Therefore, the book value for the debt, which will be close to market value if it is short-dated, will be employed using the following formula:

$$D/E = \text{Book Value of All Borrowing} / (\text{Total market Capitalisation} + \text{Book Value of All Borrowing})$$

Where market capitalization estimated by multiplying the closing market price at the end of the year by the outstanding common shares.

Firm Size. The size of firm is included to account for the potential economies of scale and scope accruing to large firms since it is expected to produce a positive relationship between firm size and performance, an argument has its roots in the industrial organization literature and more recently in the empirical studies (Gedajlovic and Shapiro 1998; Gedajlovic et al. 2003; Lincoln et al. 1996). While a positive relationship is observed in some countries, it is not always the case and there is evidence of a negative relationship (Lincoln et al. 1996). It is believed that the conflicting results on the effect of firm size are the consequence of different sample features, model employed, period covered, country concerned and whether it is a developed or developing country, and to less extent the variable(s) used as firm size estimator(s).

Size can be estimated in a number of ways. Cooke (1992) has pointed out that there is no overwhelming theoretical reason to select one variable rather than another since while size, as estimated by total assets, sales, and number of shareholders, is an important variable, it does not matter which of the three measures of size is selected. One of the size variables most commonly used by previous researchers is the book value of total assets (Gedajlovic et al. 2003; Joh 2003; Soh 1996). According to (Soh 1996) the book value of total assets may be considered to be a more robust measure of company size as it is less affected by external conditions.

It has to be noted, however, that companies might have intangible assets which is not fully included in the balance sheet. Therefore, using the book value of total assets is not considering the value of some intangible assets. But, because this study deals with companies where intangible assets are less likely to be important, using the book value of total assets is still an acceptable approach. We measure firm size as the logarithm of total assets. We used a logarithmic form of total assets for the argument presented by previous studies that the difficulty of raising another one per cent in assets is more nearly comparable between large and small firms, than is the difficulty of raising 1-million-dollar for each firm. We used the reciprocal form because we anticipated that another percentage addition to assets might, in fact, be easier for large firm to rise than for a smaller firm. In other words, a 10-million-dollar firm might have greater difficulty entering an industry with a 50-million-dollar capital requirement than a billion dollar firm would have in entering a field, which requires a 500-million-dollar initial investment.

Sales Growth. Firm demand conditions as well as firm product-life cycle might influence the relationship of ownership structure and firm performance. It is argued that since firms are more likely to face financial distress when the economy is in recession and growing slowly, low ownership concentration might negatively influence firm performance (Joh 2003). In addition, firms in relatively fast-growing markets are expected to experience higher profitability, or possibly that more profitable firms were better able to finance growth-enhancing projects (Gedajlovic and Shapiro 1998; Gedajlovic et al. 2003; Lincoln et al. 1996). It is expected, therefore, a positive relationship between performance and Sales growth. On the other hand, there it is argued that small firms find it easier to make big percentage increases than do large firms which would suggest that change in asset size and profits may be negatively associated (Kamerschem 1968). However, some studies argued that firms grow at the same rate regardless of initial size and therefore relationship between sales growth and profitability does not exist (Stekler 1963). The variable employed is measured in terms of changes in year-to-year sales, and is equal to:

$$\text{Sales Growth} = (1 - \text{Sales}_t) / \text{Sales}_{t-1}$$

Development of the Hypotheses

As it is presented above, the relationship between ownership concentration and firm performance need not be uniform, however. To examine the effect of ownership concentration on firm performance, a variety of measures have appeared in the literature. In this study we measure ownership concentration by the percentage of shares outstanding held by the largest shareholders owning more than 10% of the firm shares for the years 1996-20001 and more than 5% for the year 2002 as it is the only data provided by ASE. Such a limitation might influence the credibility of the study when it comes to compare the results over the period 1996-2001 with the year 2002, an issue should be kept in mind. Such a method adopted previously by empirical researches where the suggested percentage of shares held were of 5% or more (Gedajlovic et al. 2003; Joh 2003; Thomsen and Pedersen 2000), and for empirical testing we propose the following null hypothesis:

“H01: There is no relationship between ownership concentration and JIC performance listed on ASE over the period 1996-2002”.

The second explanatory variable, ownership identity, estimated not only by the proportion of outstanding shares owned by Foreigners, Arabs, or Jordanians, but also by individuals, companies, government agencies, government, and others ownership in order to test its influence on firms' performance. Such classification provided by ASE. The following null hypothesis, therefore, where formulated:

“H02: There is no relationship between ownership identity and JIC performance listed on ASE over the period 1996-2002”.

3. Data

To test our hypotheses we assembled data containing information on ownership structures of the largest 50 manufacturing firms (minimum total assets \$1 million)³ listed on ASE and observed these firms over the period 1996-2002. 45 firms were excluded not only because some of them were smaller than the minimum scale, but also because their shares were not traded actively and even not continuously over the period considered, issues influence estimating the true values of the OLS estimators (α , β) when it come to use capital market-based performance measures (Market-to-Book value). In this regard, it is reported by previous empirical studies that such a problem is caused by asynchronous prices in the calculation of returns. The importance of this problem becomes amplified with a shorter differencing intervals and infrequently traded securities which causing biased beta estimates (Opong 1996). Such a situation severely existed in ASE where some of the JIC listed on ASE were thinly traded over the period 1996-2002. Two firms, moreover, were lost to mergers and another two firms were excluded because the information required was not available, reducing the sample size to 46, which represents 48% of the JIC listed on ASE. This list is composed of firms primarily engaged in machinery and metal, textile, chemical, and food. The data base contains observations of the share of the largest owners and their identity plus two annual observations of key performance measures, namely; market-based measure (shareholder value estimated by market-to-book-value of equity) and accounting-based measure (return on asset). The study selected the Jordanian case since it could be argued that most Jordanian companies listed on ASE are "*Family Companies owned*" where ownership is highly concentrated. Meantime, such companies have suffered for long time from bad performance. An issue needs to be investigated to see whether such low performance related to ownership structure.

In Table 1, we present summary of the dependent and explanatory variables considered in this study means and standard deviations for the entire sample for each year separately and for all periods together, in order to be able to evaluate its pattern over the period under consideration.

³Jordan Phosphate Mines where the largest JIC size measured by total assets included in the study counted in average \$325 millions over the period 1996-2002.

Table 1: Descriptive statistics (Mean and Standard Deviation) of dependent and explanatory variables⁴

	1996		1997		1998		1999		2000		2001		2002		All Years	
	Mean	STD	Mean	STD	Mean	STD	Mean	STD	Mean	STD	Mean	STD	Mean	STD	Mean	STD
ROA	0.069	0.064	0.060	0.051	0.062	0.050	0.074	0.053	0.092	0.067	0.084	0.056	0.095	0.139	0.077	0.075
MBV	1.161	0.549	1.013	0.657	0.888	0.746	0.885	0.613	1.084	1.530	0.833	0.583	0.896	0.808	0.966	0.845
OWCO	0.218	0.210	0.229	0.213	0.289	0.202	0.278	0.221	0.286	0.219	0.307	0.224	0.417	0.212	0.289	0.221
FORG	0.009	0.023	0.010	0.025	0.016	0.052	0.020	0.061	0.021	0.074	0.019	0.073	0.018	0.079	0.016	0.059
ARAB	0.058	0.081	0.059	0.080	0.084	0.105	0.091	0.130	0.098	0.134	0.099	0.140	0.098	0.151	0.084	0.120
JORD	0.933	0.081	0.931	0.083	0.900	0.112	0.889	0.142	0.881	0.145	0.882	0.151	0.884	0.163	0.900	0.130
INDV	0.579	0.210	0.559	0.195	0.559	0.205	0.554	0.213	0.552	0.214	0.554	0.219	0.558	0.227	0.559	0.210
COMP	0.255	0.155	0.262	0.159	0.273	0.149	0.279	0.162	0.275	0.170	0.283	0.174	0.284	0.176	0.273	0.163
GVAG	0.056	0.096	0.056	0.099	0.045	0.066	0.038	0.058	0.041	0.061	0.041	0.063	0.042	0.070	0.045	0.074
GOVM	0.055	0.152	0.058	0.153	0.057	0.167	0.060	0.175	0.057	0.175	0.054	0.179	0.058	0.181	0.057	0.168
OTHR	0.055	0.070	0.066	0.077	0.065	0.068	0.069	0.074	0.075	0.082	0.067	0.082	0.057	0.077	0.065	0.075
CAST	0.174	0.152	0.210	0.221	0.232	0.229	0.230	0.236	0.239	0.260	0.238	0.265	0.221	0.261	0.220	0.234
Log FRSI	7.024	0.561	7.061	0.568	7.064	0.574	7.062	0.573	7.055	0.582	7.053	0.588	7.060	0.598	7.054	0.573
SAGR	-1.040	0.584	-1.306	0.899	-1.084	0.464	-0.898	0.355	-1.156	0.600	-1.166	0.737	-1.048	0.307	-1.100	0.602

The sample includes 46 JIC listed on Amman Stock Exchange (ASE) over the period 1996-2000 continuously. Data concerning the dependent and explanatory variable obtained from companies' annual reports as well as the data published by the ASE such as the stock price data and financial information. We measure ownership concentration by the percentage of shares outstanding held by the largest shareholders owning more than 10% of the firm shares for the years 1996-2001 and more than 5% for the year 2002 as it is the only data provided by ASE. Ownership identity estimated by Foreigners (FORG), Arabs (ARAB), Jordanians (JORD), Individuals (INDV), Companies (COMP), Government Agencies (GVAG), Government (GOVM), and Others ownership (OTHR), a classification provided by ASE as a percentage from the total outstanding shares. Capital Structure (CAST), Firm Size (FRSI), and Sales Growth (SAGR) are the controlled variables.

⁴ Number of observations (companies) for each variable included were 46 representing 48% of the JIC listed on ASE. This list is composed of firms primarily engaged in machinery and metal, textile, chemical, and food. Number of observations for each variable over the all period was 322 observations.

As it can be seen from the above table, Foreign (FORG) are the lowest level of investors compared to JORD, who are the highest, followed by the ARAB for each year separately and over the all years together. In addition, most of the owners are individuals (INDV) followed by companies (COMP). Those INDV and COMP owners, however, own at the minimum 21% and at the maximum 40% of the outstanding shares in the sample firms as the OWCO variable shows, which could be considered as a high level of ownership concentration. Generally speaking, sales growth results presented in Table 1 show a continuous decrease over the period 1996-2002. Finally, we note that JIC in the sample had ROA, on average, 7.7% with overall increase and a relatively high standard deviation of between 5.3% and 14%,⁵ where it had MBV, on average, 0.966 times and relatively quite higher standard deviation of between 55% and 153% compared to ROA.

Pressures to restructure corporate activities characterize the 1996-2002 periods in Jordan. The period covers several major shocks, instability and transitions in the Jordanian economy starting mainly in 1990 by the boycott in Iraq the biggest trade partner to Jordan. Opening the Jordanian economy to the outside world as a result, in addition, a move consisted signing different trade agreements such as Jordan-USA bilateral investment treaty and establishing the Qualified Industrial Zones (QIZs) in cooperation with the USA in 1997, the Arab free trade in 1998, Jordanian European joint partnership in 1999, Euro-Mediterranean and World Trade Organization (WTO) in 2000.

This was also a period of major institutional changes were rapid deregulation of ASE and advanced Companies Act issuance covering new issues concerning foreign investments for the first time took place in 1997. Finally, this was a period were International Accounting Standards (IASs) for financial reporting and International Standards for Auditing adopted forced by ASE new law starting from 1998.

Taking into account that the annual reports and the information needed for analysis could not be available longer than the period considered (the annual reports can not be later than the year 2002 because of its availability considering that collecting these annual reports took place by the end of the year 2003 and listed Jordanian industrial companies on ASE included in this study take some of them three months after the end of the financial year to publish their annual report). We obtain the stock price data, in addition, for the firms from ASE database. The reason for covering more than one year, moreover, is that it would provide a better picture of the ownership structure pattern and whether it had influenced firm's performance. Choosing the period 1996-2002, therefore, is clearly justified for achieving the study objectives.

4. Empirical model

In order to make our hypotheses more concrete, we specify and estimate an empirical model linking ownership structure and performance. The models to be estimated are the following equations:

⁵ The comparable means and (standard deviations) for other countries reported by (Gedajlovic and Shapiro 1998) are: U.S. 7.92 (8.96), U.K. 11.02 (7.58), Germany 5.26 (8.94), France 7.62 (8.37), and Canada 6.32 (9.35).

$$ROA_{it} = \alpha + \beta_1 * OWCO + \beta_2 * FORG + \beta_3 * ARAB + \beta_4 * JORD + \beta_5 * INDV + \beta_6 * COMP + \beta_7 * GVAG + \beta_8 * GOVM + \beta_9 * OTHR + \beta_{10} * CAST + \beta_{11} * FRSI + \beta_{12} * SAGR + e_{it} \quad (1)$$

$$MBV_{it} = \alpha + \beta_1 * OWCO + \beta_2 * FORG + \beta_3 * ARAB + \beta_4 * JORD + \beta_5 * INDV + \beta_6 * COMP + \beta_7 * GVAG + \beta_8 * GOVM + \beta_9 * OTHR + \beta_{10} * CAST + \beta_{11} * FRSI + \beta_{12} * SAGR + e_{it} \quad (2)$$

Where: for firm i at time t , α is the constant term, β is a vector of regression slope, ROA, MBV, OWCO, *FORG*, *ARAB*, *JORD*, *INDV*, *COMP*, *GVAG*, *GOVM*, *OTHR* are vectors of Return on Assets, Market-to-Book Value, Ownership Concentration, Foreign Ownership, Arabs Ownership, Jordanians Ownership, Individuals Ownership, Companies Ownership, Government Agencies Ownership, Government Ownership, and Others Ownership, respectively. *CAST*, *FRSI*, and *SAGR*, moreover, are vectors of Capital Structure, Log Firm Size, and Sales Growth, respectively, are vectors of control variables, where e_{it} is the disturbance terms. The disturbance term represents two sets of factors. First, it represents the effect on the dependent variable (firm performance) of all variables other than the ones included in the study. Second, even if the variable included were the only identifiable variable influencing the dependent variable, it should not be expected that the same level of dependent variable will stay year after year. The disturbance term, therefore, is included to allow for the basic random unpredictability of human behavior (Thomas 1997). The data are pooled over the 7-year period 1996-2002. The model was first estimated on a year-by-year basis and was then estimated by pooling all data for all years.

The multivariate analysis carried out in this study is not only multiple regression routines but also stepwise regression technique in order to determine which explanatory variables are “best” in explaining firm performance variation over the period under consideration. The firm performance was the dependent variable and the independent variables were ownership concentration, ownership identity, capital structure, natural logarithm of company size⁶, and sales growth.

One of the problems of undertaking any multiple analyses is that there may be multicollinearity between independent variables. The multiple regression models assume that there is no linear relationship between the values of the independent variables. If the linear relationships exist then it becomes impossible to compute the estimators (β_i). It is stated that the variances and hence standard errors of the estimators (coefficients of the explanatory variables) will tend to be large (inflate standard errors) whenever there is a high degree of multicollinearity (Thomas 1997). Since there is no reason why multicollinearity should affect our estimators of these standard errors, their size will be reflected in any estimated standard errors that we compute. This is the major possible adverse factor when multicollinearity is present - large standard errors and hence large estimated standard errors. That is, our estimates will lack precision and we will be very uncertain about true parameter values. Therefore, multicollinearity checked not only by testing for Pearson Correlation Coefficients as it has been adopted by previous empirical studies (Street and Bryant

⁶ It has to be mentioned that the natural logarithm for company size has been employed because linearity assumption improved, which is one of the main assumptions for implementing the regression model, comparing with the actual values.

2000; Wallace and Naser 1995; Wallace et al. 1994)⁷, but also by running the stepwise regression technique (Malone et al. 1993). Malone et al. (1993) reported that an examination of the regression coefficients was made at each step of the stepwise procedures. This examination showed that as variables were removed from the model, the coefficients of these variables, their standard errors, and the mean-square error remained relatively stable. In the presence of multicollinearity, as variables were removed, one would expect these values to exhibit instability.

An important point to note is that, in order to undertake ordinary least-squares (OLS) multiple linear regression, the data must fulfil certain conditions, i.e. normality, homogeneity (equal variance), uncorrelated⁸ and linearity. The most commonly suggested approach to check whether or not the data fulfil these conditions is an analysis of the residuals (Kinnear and Gray 1995; Norusis 1995). In this study a Q-Q plot of residuals was analysed and formal tests of normality of residuals (skewness, kurtosis and K-S Lilliefors) were undertaken to check the normality assumption (Norusis 1995). Furthermore, the linearity and homogeneity assumptions were checked by analysing the scatterplots of the regression standardised predicted values against the residuals (Kinnear and Gray 1995). Finally, a commonly used statistic for testing the existence of autocorrelation among residuals is the Durban-Watson (DW) statistic, which will be, employed (Maddala 2001).

5. Results and discussion

Table 2 provides the pooled (1996-2002) correlation matrix of the variables used in the multivariate analysis.

⁷ When we test for the multicollinearity, we look at the correlation coefficients, which should not be considered harmful until they exceed 0.80 as it is argued by Judge et al. (1985) while Street and Bryant (2000) argued that it should not exceed 0.90. Wallace et al. (1994), however, considered coefficient of correlation exceeding 0.77 high enough to cause multicollinearity concern.

⁸ Correlation between the error terms arising in time-series data which called autocorrelation or serial correlation. If autocorrelation exists, that means the error term u_t at time period t is correlated with error terms u_{t+1}, u_{t+2}, \dots and u_{t-1}, u_{t-2}, \dots and so on. Such correlation in the error terms often arises from the correlation of the omitted variables that the error term captures. The correlation between u_t and u_{t-k} is called an autocorrelation of order k . the correlation between u_t and u_{t-2} is called the second-order autocorrelation and is denoted by ρ_2 , and so on. Hence, there are $(n-1)$ such autocorrelations if we have n observations. The consequences of autocorrelation errors are: 1) the least squares estimators using the multiple regression are unbiased but are not efficient, and 2) the sampling variances are biased and sometimes likely to be seriously understated. Thus, R^2 as well as t and f statistics tend to be exaggerated (Maddala, 2001).

Table 2: Correlation matrix, pooled 1996-2002

	MBV	ROA	Log FRSI	CAST	SAGR	INDV	COMP	GVAG	GOVM	OTHR	FORG	ARAB	JORD	OWCO
MBV	1.0000													
ROA	0.1948*	1.0000												
Log FRSI	0.1507*	-0.1083	1.0000											
CAST	-0.3587*	-0.0736	-0.0915	1.0000										
SAGR	0.0091	0.0175	-0.0071	-0.0354	1.0000									
INDV	-0.2498*	-0.0129	-0.4707*	0.1772*	-0.1475*	1.0000								
COMP	0.2073*	0.0912	0.0457	-0.0598	0.1132**	-0.5059*	1.0000							
GVAG	0.0082	-0.1169**	0.3718*	-0.1126**	0.0765	-0.2359*	-0.1256**	1.0000						
GOVM	0.0494	-0.0275	0.3915*	-0.1058	0.0714	-0.5844*	-0.2248*	-0.0048	1.0000					
OTHR	0.131**	0.0156	-0.0244	-0.0184	-0.0671	-0.1626*	-0.1226**	-0.0473	-0.1064	1.0000				
FORG	0.1363**	-0.0411	0.3086*	-0.1271**	0.0099	-0.2708*	0.2703*	0.3327*	-0.0538	-0.0365	1.0000			
ARAB	0.0109	-0.0091	0.2398*	-0.1185**	-0.0869	-0.1088	-0.0644	-0.0563	0.2296*	-0.0132	-0.081	1.0000		
JORD	-0.0721	0.0271	-0.3628*	0.1677*	0.0762	0.2241*	-0.063	-0.0988	-0.1887*	0.0289	-0.3795*	-0.8917*	1.0000	
OWCO	0.2023*	0.0178	0.1229**	-0.1203**	0.0562	-0.4936*	0.085	0.0176	0.54*	-0.0266	0.1781*	0.3551*	-0.4105*	1.0000

Pearson 2-tailed tests are indicated as: * $\rho < 0.1$; ** $\rho < .05$; *** $\rho < 0.01$

The correlation coefficient reported in Table 2 indicated that there is a positive correlation between COMP, GVAG, GOVM, OTHR, FORG, ARAB, and OWCO and performance estimated by MBV, while the correlation between INDV and JORD and MBV were negative. None of the explanatory variables, however, were significant at 0.05 level except for the variables OTHR and FORG, while INDV, COMP, and OWCO had a significant correlation with MBV at 0.1 level only. Estimating performance by using ROA, the results indicated that there is a positive correlation with COMP, OTHR, JORD, and OWCO, while the correlation with INDV, GVAG, GOVM, FORG, and ARAB were negative. None of the explanatory variables, however, were significant at 0.05 level except for the variable GVAG. Since the significant correlation between GVAG and performance estimated by ROA were negative, it could be argued that JIC listed on ASE suffered from bad performance had the support from Jordanian Government Agencies by buying its shares as a move for protecting such companies from being bankrupted. It has to be noted, however, that INDV and JORD variables were having a significant correlation at 0.1 level with most of other explanatory variables highlighting the importance of being eliminated when running the regression model.

Our argument presented previously concerning JIC annual reports accuracy and confidentiality could be confirmed by testing the significance of the relationship between FORG and MBV and ROA. Table 2 shows that while the correlation between FORG and MBV is significant at .05 level, it is not between FORG and ROA, a finding highlighted the fact that FORG depend on ASE valuation to a firm rather that relying on the firm annual report. Such a result confirm that most of the variation of the JIC performance estimated by MBV explained by FORG as an explanatory variable at 0.05 level, while at 0.1 level, INDV, COMP, OTHR, and OWCO explain MBV variation over the all period together (1996-2002). In contrast, the variation of the JIC performance estimated by ROA explained only by GVAG.

This paper has examined the impact of share and identity of the largest owners on return on assets and market-to-book values as firm performance measures in a number of the largest JIC listed on ASE. To understand the cross-sectional variation in firm performance, we present estimates from multivariate regressions. This section, therefore, examines whether the basic regression results hold for individual years as well as over the all period considered in this study (1996-2002). Table 3 reports the results of the regression on how ownership concentration and identity affect firm performance (ROA) each year and over the all period.

Table 3: Ownership structure measures influences on performance (ROA) 1996-2002⁹

	1996		1997		1998		1999		2000		2001		2002		All Years	
	β	t-statistics	β	t-statistics	β	t-statistics	β	t-statistics	β	t-statistics	β	t-statistics	β	t-statistics	β	t-statistics
Constant	0.3149	1.5986	0.0594	0.4348	0.0734	0.5402	0.2018	1.5052	0.2640	1.8011	0.1307	0.9305	0.3769	1.0498	0.1581	2.3105
Log FRSI	-0.0336	-1.1615	0.0036	0.1786	-0.0052	-0.2658	-0.0156	-0.7787	-0.0282	-1.2480	-0.0099	-0.5031	-0.0376	-0.7374	-0.0120	-1.1864
CAST	0.0262	0.3384	-0.1069	-2.802**	-0.0548	-1.4930	-0.0173	-0.4717	0.0057	0.1555	0.0185	0.5326	-0.1064	-1.1398	-0.0272	-1.4758
SAGR	0.0171	0.8558	-0.0026	-0.2637	-0.0103	-0.5576	0.0091	0.3800	-0.0112	-0.7030	0.0013	0.0689	-0.0077	-0.0974	0.0011	0.1522
COMP	-0.0189	-0.2423	0.0399	0.6086	0.0640	1.0218	-0.0275	-0.4638	0.0401	0.6274	0.1003	1.4947	0.2026	1.2437	0.0424	1.3845
GVAG	-0.0171	-0.1206	-0.0174	-0.1662	0.0520	0.3075	-0.2807	-1.4786	-0.1537	-0.8007	-0.1432	-0.8367	0.0599	0.1564	-0.0732	-1.0774
GOVM	0.0230	0.2127	0.0240	0.2980	-0.0472	-0.5726	-0.0422	-0.5785	0.2601	3.2428**	-0.0026	-0.0312	0.0158	0.0822	0.0070	0.1821
OTHR	-0.1522	-0.9182	0.0374	0.3179	0.0863	0.7300	0.0722	0.6594	0.0580	0.5181	0.0850	0.7817	-0.1663	-0.5323	0.0211	0.3693
FORG	1.1413	1.9638	-0.1567	-0.4421	-0.0650	-0.2761	0.0262	0.1420	-0.0180	-0.1097	-0.0597	-0.3890	-0.0107	-0.0288	-0.0315	-0.3657
ARAB	0.1618	0.8531	-0.1845	-1.3594	0.0520	0.5979	0.0644	0.8897	-0.0692	-0.8551	-0.0542	-0.6126	0.1018	0.5870	-0.0020	-0.0499
OWCO	-0.0135	-0.1761	-0.0277	-0.5261	0.0045	0.0701	0.0140	0.2625	-0.0141	-0.2350	-0.0046	-0.0781	-0.1480	-0.9453	0.0032	0.1205
F Value	0.5092		1.0971		0.6519		0.8998		2.2636**		0.8607		0.4107		1.1052	
R²	0.1270		0.2387		0.1570		0.2045		0.3927		0.1974		0.1050		0.0343	
Durbin-Watson	1.5930		1.6046		2.2219		1.4166		1.7349		2.0136		2.2370		1.9299	

P-values test the null hypothesis that the restriction is not valid at the 0.05 level. *T-statistics* figures and *F* values are with the following levels of significance indicated: * $\rho < 0.1$; ** $\rho < 0.05$; *** $\rho < 0.01$, two-tailed tests.

⁹ Number of observations (companies) for each variable included for running the multiple regression were 46, while the number of observations for each variable over the all period were 322 observations. Degrees of freedom when running the multiple regression for each year, therefore, were 36 degrees since the number of variables considered were 10 as explained above, where the degrees of freedom when running the multiple regression for the all period were 312 degrees.

Table 3 shows that F values were not significant not only for each year separately, except for the year 2000, but also for the all period together under consideration. In addition, the explanatory variables were not significantly explaining JIC performance estimated by ROA (the dependent variable) since R^2 were quite low having a range between 39% at the maximum in 2000 and 10% at the minimum in 2002 suggesting that there are other variable not considered in this study influencing the ROA. Correlation between the error terms arising in time-series data which called autocorrelation or serial correlation. If autocorrelation exists, that means the error term ut at time period t is correlated with error terms $ut+1, ut+2, \dots$ and $ut-1, ut-2, \dots$ and so on. Such correlation in the error terms often arises from the correlation of the omitted variables that the error term captures. The correlation between ut and $ut-k$ is called an autocorrelation of order k . the correlation between ut and $ut-2$ is called the second-order autocorrelation and is denoted by ρ_2 , and so on. Hence, there are $(n-1)$ such autocorrelations if we have n observations. The consequences of autocorrelation errors are: 1) the least squares estimators using the multiple regression are unbiased but are not efficient, and 2) the sampling variances are biased and sometimes likely to be seriously understated. Thus, R^2 as well as t and f statistics tend to be exaggerated (Maddala, 2001, PP. 228-241). Therefore, since the values of Durbin-Watson were less than 2, it means that autocorelation problem exists.

Controlling for capital structure, firm size, and sales growth, we found evidence that ownership concentration yields mixed (negative and positive) but not significant effect on return on assets. Over all, it can be argued that ownership concentration yields positive but not significant effect on return on assets. It is argued that ownership structure is an important factor in determining firm value since concentrated ownership-managers minimizes the agency problem that arises from the separation of ownership and control (Krueger and Yoo 2001; La Porta et al. 2002; Lemmon and Lins 2002 ; Rose 2002; Thomsen and Pedersen 2000), and therefore predicts a positive relationship between firm performance and ownership concentration which has been supported empirically (Bae et al. 2002; Joh 2003; Johnson et al. 2000b; La Porta et al. 2002; Mitton 2002; Thomsen and Pedersen 2000). For the ownership identity variable, however, owner identities estimated by COMP, GVAG, GOVM, OTHR, FORG, ARAB variables, were found to have mixed and not significant relationship (i.e. negative for some years and positive for other for each variable) over the period 1996-2002. In conclusion, the ownership concentration and ownership identity effect was not statistically significant not only for each year separately, but also for the all period together in its association with JIC performance estimated by ROA.

To further examine the effect of ownership structure measures, we extend the empirical tests by considering the Market-to-Book Value (MBV) as a financial market-based measure to see whether the above results still hold. Table 4 reports the results of the regression on how ownership concentration and identity affect firm performance (MBV) each year and over the all period.

c: Robustness checks with different performance measure: Ownership structure measures influences on performance (MBV) 1996-2002

	1996		1997		1998		1999		2000		2001		2002		All Years	
	β	t-statistics	β	t-statistics	β	t-statistics	β	t-statistics	β	t-statistics	β	t-statistics	β	t-statistics	β	t-statistics
Constant	-0.8155	-0.6006	-1.5075	-1.0447	-0.8352	-0.5184	-0.9631	-0.7500	-3.3916	-0.9808	-2.0647	-1.9669	-3.0701	-2.0949**	-1.4493	-2.1167**
Log FRSI	0.2735	1.3716	0.3215	1.5134	0.1776	0.7648	0.2179	1.1379	0.5076	0.9509	0.4705	3.1871**	0.6397	3.0714**	0.3215	3.1828**
CAST	-1.9005	-3.5558	-1.5587	-3.8659**	-1.5947	-3.6648**	-1.1756	-3.3399	-0.1959	-0.2270	-1.3392	-5.1660	-1.6232	-4.2602	-1.2451	-6.7549**
SAGR	-0.0212	-0.1541**	-0.0702	-0.6715	-0.2929	-1.3417	-0.1880	-0.8169**	0.4332	1.1526	-0.0315	-0.2321	-0.1193	-0.3717	-0.0253	-0.3553
COMP	0.8128	1.5150	0.9374	1.3540	0.5426	0.7311	0.7953	1.4008	1.7702	1.1739	0.3666	0.7308	-0.0074	-0.0111	0.6883	2.2465**
GVAG	-0.0932	-0.0955	-0.4224	-0.3815	0.1551	0.0774	-0.6307	-0.3469	-1.5665	-0.3460	-2.9534	-2.3083**	-4.8243	-3.0849**	-0.9840	-1.4477
GOVM	0.0462	0.0618	-0.0844	-0.0990	-1.5890	-1.6256	-0.8322	-1.1906	-2.2573	-1.1931	-0.6556	-1.0713	-0.8027	-1.0236	-0.6995	-1.8232
OTHR	1.2713	1.1128	1.0789	0.8686	0.3336	0.2381	0.5320	0.5074	8.0214	3.0398**	-1.3711	-1.6867	0.0717	0.0562	1.4511	2.5392**
FORG	-1.2315	-0.3074	-0.7126	-0.1902	-0.8818	-0.3161	0.0514	0.0291	-3.2573	-0.8389	0.2748	0.2394	1.5282	1.0102	-0.6094	-0.7076
ARAB	-1.9568	-1.4967	-2.3150	-1.6136	-1.6268	-1.5772	-1.0303	-1.4852	-1.6152	-0.8457	-0.4938	-0.7468	-0.0922	-0.1303	-1.0029	-2.4714**
OWCO	0.9853	1.8687	1.4949	2.6819**	2.0236	2.6521**	1.1462	2.2455**	2.6967	1.9047	0.1650	0.3728	-0.2125	-0.3326	1.0026	3.7352**
F Value	2.8089**		3.3975**		3.0596**		3.0409**		1.8753		5.075**		4.3923**		9.7578**	
R²	0.4452		0.4926		0.4664		0.4649		0.3489		0.5918		0.5565		0.2388	
Durbin-Watson	2.2642		1.9101		1.9353		1.8985		1.8700		2.0442		1.9569		1.9278	

P-values test the null hypothesis that the restriction is not valid at the 0.05 level. *T-statistics* figures and *F* values are with the following levels of significance indicated: * $\rho < 0.1$; ** $\rho < .05$; *** $\rho < 0.01$, two-tailed tests.

Table 4 shows that F values were significant not only for each year separately, except for the year 2000, but also for the all period together under consideration, a result totally the opposite reported in Table 3 when performance estimated by using ROA. In addition, the explanatory variables were significantly explaining JIC performance estimated by MBV (the dependent variable) since R^2 were quite high having a range between 34% in 2000 and 59% in 2002 suggesting that the model used explaining high level of JIC performance variation estimated by MBV.

Unlike the results presented in Table 3, controlling for capital structure, firm size, and sales growth, Table 4 shows that OWCO was positively and significantly associated with market-to-book value over the period 1997-1999 when the dependent variable influenced by other ownership for the year 2000, government agencies ownership for the years 2001 and 2002. Over all, it can be said that ownership concentration yields, positive and significant effect on market-to-book value. It has to be note, however, that Table 1 shows the mean pattern of the ownership concentration. Liking that pattern with the positive-ness and negative-ness for the association between market-to-book value and ownership concentration presented in Table 4, it can be seen that ownership concentration was having a positive association with the market-to-book value when ownership concentration was less than 30%, while if such concentration increased over that level, the association shifted to be negative. Such a finding concludes that ownership concentration of outstanding shares owned by Jordanian individuals and companies had a positive influence on JIC performance estimated by MBV until it reached 30%, where it had a negative influence when ownership concentration of outstanding shares owned by Jordanian individuals and companies increased more than that level. Such a result supported by previous empirical studies. Using large U.S. firms, (Morck et al. 1988) show that firm value estimated in Tobin's Q and profit rate first increases, then decreases and increases again as the management ownership increases. A similar result reported by (Joh 2003) who reported that the association between ownership concentration and firm's profitability were nonlinear. Furthermore, ownership identities were found to be as important as ownership concentration. Arab and other ownerships were generally associated with high market-to-book values, yields negative and significant effect. Therefore, overall, it could be argued that increasing the level of Arab and other ownership will influence negatively and significantly JIC market-to-book value.

6. Summary and Conclusion

In this paper we examine the influence of ownership structure measures in determining firm performance during tough and instable period of time. Estimating performance by ROA as a dependent variable and controlling for capital structure, firm size, and sales growth, we found evidence that ownership concentration yields positive but not significant effect on return on assets. Moreover, the results show that firms with foreign, Arab, companies, government agencies, government, others ownership identities were not only having a mixed (i.e. negative for some years and positive for other for each variable) but also having no significant relationship.

In contrast, estimating performance by market-to-book value, ownership concentration yields positive and significant effect. It has to be noted, however, that ownership concentration was having nonlinear association with JIC market-t-book

value. That is having a positive association with the market-to-book value when ownership concentration was less than 30%, while if such concentration increased over that level, the association shifted to be negative. Such a finding concludes that ownership concentration of outstanding shares owned by Jordanian individuals and companies had a positive influence on JIC market-to-book value until it reached 30%, where it had a negative influence when ownership concentration of outstanding shares increased more than that level. Furthermore, ownership identities were found to be as important as ownership concentration. Arab and other ownerships were generally associated with high market-to-book values, yields negative and significant effect. Therefore, overall, it could be argued that increasing the level of Arab and other ownership will influence negatively and significantly JIC market-to-book value.

The existence of such systematic evidence on the extent to which firm performance is related to several key indicators of ownership structure suggests that differences in governance practice at the firm level play an important role in determining performance during tough period of time. If further studies especially in an emerging markets support these results, policies that improve a country's ownership structure system can support its aggregate economic growth and stability.

Firm management can play an active role in this process through influencing the decision to privatize, go public or dismantling groups. Furthermore, it is indicated how company strategies can be matched to the ownership structure. For example, well-defined cost leadership strategies based on the exploiting of economies of scale appear to better match the objectives of institutional investors than other owners do. Similarly, a growth strategy based on organic growth rather than a more risky acquisition strategy is more in line with family ownership. The point needs to be highlighted is that the corporate strategy needs to fit the objectives of the dominant owner in order to be able to minimize the agency problem that arises from the separation of ownership and control and consequently improve firm performance.

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