

The Effects of Ownership Structure  
on Corporate Performance

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by

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## ABSTRACT

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It has been suggested that when the ownership of a firm is dispersed, its managers will deviate from profit-maximizing behaviour. Furthermore, there is an asymmetry for these managers between the consequences of outstanding success and severe failure. Moreover, managers' utility tends to increase with firm size. Hence, the 'managerial theory of the firm' says that manager-controlled firms will be less profitable, will tend more to avoid risky decisions and grow faster than owner-controlled firms. On the other hand, other scholars have pointed out that there are also benefits associated with the dispersed ownership corporation. Thus, the effects of ownership structure on corporate performance have been a focus of research in Western countries. The opening of the Istanbul Stock Exchange has introduced an increasing degree of ownership dispersion in Turkey too, a phenomenon that is expected to intensify in the coming years with the increasing prominence of the stock exchange. Therefore, we undertake a research on a sample of firms selected from the Istanbul Stock Exchange concerning the profitability, capital structure and growth of firms and using data from the Exchange's Yearbook of Companies.

Running regressions and ANOVAs we see that dispersed ownership firms are somewhat more profitable and grow faster. We also find out that firms with major-financial-institutional shareholders are less profitable in Turkey. At the end of our research, we suggest some reasons for these phenomena.

## KISA ÖZET

### Ortaklık Yapısının Şirket Performansı Üzerindeki Etkileri

Selim Sidi

Şirketlerin ortaklıkları yaygın olduğu zaman yöneticilerin kar maksimizasyonu davranışından sapacakları öne sürülmüştür. Ayrıca yöneticiler için üstün başarının ve ciddi başarısızlığın sonuçları arasında bir asimetri mevcuttur. Yöneticilerin firmadan edindikleri toplam fayda da firmanın büyüklüğü ile artmaktadır. Bu yüzden şirketin yönetsel kuramı yönetici kontrollü şirketlerin hissedar kontrollü şirketlerden daha az karlı, riskli kararlardan daha çok kaçınan ve daha hızlı büyüyen şirketler olacaklarını söylemektedir. Öte yandan başka bazı araştırmacılar yaygın mülkiyetli şirketlerin de çeşitli yararları olduğuna işaret etmişlerdir. Dolayısıyla batılı ülkelerde ortaklık yapısının şirket performansı üzerindeki etkileri bir araştırma odağı olmuştur. İstanbul Menkul Kıymetler Borsasının açılması Türkiye'de ortaklığın yayılma derecesini arttırmış olup, bu durumun borsanın önde gelen konumuyla beraber ileriki yıllarda artarak sürmesi beklenmektedir. Bunun için İstanbul Menkul Kıymetler

Borsasından seçilmiş bir grup şirket üzerinde, yine borsanın yayınladığı yıllıklardaki verileri kullanarak firmaların karlılıkları, sermaye yapıları ve büyümeleri hakkında bir araştırma yapılmıştır. Regresyon ve ANOVA analizleri sonucu yaygın mülkiyetli şirketlerin nispeten daha karlı oldukları ve daha hızlı büyüdükleri görülmüştür. Ayrıca Türkiye'de en büyük ortakları finansal kurumlar olan şirketlerin daha az karlı oldukları da görülmektedir. Araştırmanın sonunda bu sonuçların olası sebepleri üzerinde durulmuştur.

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## I. INTRODUCTION

When we look at the world around us, we see that the stock of some firms are concentrated in the hands of a single owner, while the stock of other firms are dispersed across the hands of many. The merits and drawbacks of this dispersion have recently been the focus of heated debate, although we can also find discussions in older times. Adam Smith, who was quite skeptical about dispersed-ownership organizations, suggested that the existence of corporations encouraged people to invest money in a company by risking only a small part of their wealth, although they understood nothing from its business. Therefore, they were totally detached from its operations and the directors of these companies would not try to put the invested money to good use as hard as if it were their own (Stigler and Friedland, 1983). Smith went on claiming that, rare exceptions aside, joint stock companies had always performed worse than private copartnerships.

The discussion continued throughout the 19th century. Notwithstanding all the arguments, pro or con, the corporate form of conducting business flourished in Western countries. The opening of the Istanbul Stock Exchange has introduced an increasing degree of ownership dispersion in Turkey too, a phenomenon that is expected to intensify in the coming years with the increasing prominence of the stock exchange. Therefore, it is of central importance to establish whether the dispersion of ownership entails a net advantage or disadvantage. To this end, we undertake a research on the profitability, capital

structure and growth aspects of firms in the Istanbul Stock Exchange. We will begin by tracing the developments on this subject from the early ideas upto the present in Chapter 2. We will see both the theories that have been formulated and how they have been tested in real-world contexts. Then, in Chapters 3 and 4, we will base ourselves on the discussion in Chapter 2 to formulate our hypotheses and to develop the methodology for our research, respectively. We will present the findings in Chapter 5. After an opening section discussing issues common to the tests for all the dependent variables, this chapter elaborates on the results for each of them separately. Tables about these results can be found in the appendices at the end of the thesis. Finally in Chapter 6, we review the empirical results of our study collectively and suggest some explanations for the observed phenomena.

## II. LITERATURE REVIEW

The intensive study of the effect of ownership structure on corporate performance began with 'The Modern Corporation and Private Property' by Adolf Berle and Gardiner C. Means during the Great Depression in the United States, a publication that has been of continuing influence upto the present. As Berle and Means showed, the 200 largest nonfinancial corporations in the United States were holding 49% of nonbanking corporate wealth at their time (Stigler and Friedland, 1983). Furthermore, basing themselves on the diffusion of stockholdings they claimed that in 44% of these 200 firms, stockholder control had effectively ceased to exist. These observations underlie the major claim of the book: The separation of ownership and control of the modern corporation had become so important that we could say, we have entered 'a new era of economic organization'. The consequences were twofold. First, since the diffused ownership corporation was so prominent among the largest firms that had a considerable impact on the economy as a whole, the effect of the separation of ownership and control on the general economy would be considerable, too. This track leads to the nature of the resulting changes in the macroeconomic variables and we will not pursue it further in this thesis. Second, the authors asserted that, since corporate officers usually own only a small fraction of a firm's stock, the interests of the managers and the stockholders in the diffused ownership firm would diverge widely. They acknowledged that there were some constraints on the

extent to which the managers could abuse the stockholders, e.g. their need to sell securities when they need to raise additional capital, but they viewed such constraints as insufficient to change the basic conclusion that managers did not necessarily act in the best interest of the stockholders. Hence, said they, manager-controlled firms are less profitable than owner-controlled firms.

Berle and Means defined the control of a corporation as the power to select a majority of the board of directors and proposed the following classification of firms (Larner, 1966):

- i) Privately owned: The dominant (i.e. largest) shareholder owns more than 80% of the stock.
- ii) Majority controlled: The dominant shareholder owns more than 50%, but less than 80% of the stock.
- iii) Minority controlled: The dominant shareholder owns more than 20% but less than 50% of the stock.
- iv) "Controlled by means of a legal device", i.e. pyramiding, etc.
- v) Management controlled.

They also distinguished between 'immediate' and 'ultimate' control, where the latter concept incorporated a controlling corporation's control type; e.g. if a corporation is majority-controlled by another corporation, which itself is minority-controlled, then the first corporation has immediate control type majority-controlled and ultimate control type minority-controlled.

In the late 20th century, the validity of such classifications has been subject to considerable debate. The basic problem can be stated as follows: "Minority

control is the control by holders of a substantial fraction, but less than half, of the voting stock. [Stigler and Friedland, 1983; p.247]" Management control is then specified as a residual category; corporations that do not fit in any of the previous categories are management-controlled. It is of utmost importance then what 'a substantial fraction' means: 10%, 15%, 25%, 40% or something else? Figures such as 2% or 47% can be classified more or less safely, the former indicating management-control and the latter minority-control, but where to draw the line? This 'boundary-setting' has become the province of subjective criteria throughout consecutive works of research and was influential in the abandoning of such discrete classificatory schemes in a large number of recent works. We will return to this issue in later parts of this literature review.

The decades that followed Berle and Means's book witnessed publications usually supporting their viewpoint about the disadvantage of the separation of ownership and control for the stockholders, but occasionally also opposing the idea that managers were purposefully or by neglect abusing the shareholders. The first viewpoint is exemplified by Mosen and Downs, who argued that if a firm is management-controlled or has a bureaucratic management structure, it will deviate from the objective of profit-maximization whenever a set of assumptions is satisfied (Mosen and Downs, 1965). These scholars focused their interest on two types of firms: 1) Owner-managed firms: The owners and the managers are the same people. 2) Managerial firms: Managers do "not own anywhere near a

controlling interest in [these firms] [Monsen and Downs, 1965; p.223]": These latter firms are further subdivided into a) Diffused-ownership managerial firms, and b) Concentrated ownership managerial firms. In b), "one person or an organized coalition of persons owns a controlling interest in the firm [Monsen and Downs, 1965; p.223]", while in a) such is not the case. At this point, we want to draw attention to two of Monsen and Downs' assumptions that are rather crucial: The first one is that firms in 2b behave very much like firms in 1 and that both can be grouped in a single category for practical purposes. While some of the empirical works followed this line of thought, it has also been suggested that such grouping may lead to faulty conclusions (McEachern, 1976). The second one is that "the stock dividends of each manager comprise a relatively small part of his income in relation to his salary and bonuses. [Monsen and Downs, 1965; p.224]" Hence, the following analysis holds true only for such firms and we should be careful before generalizing the results, since empirical research has shown that this criterion is not always met (Bentson, 1985; Demsetz, 1983). This said, Monsen and Downs argued that people are primarily motivated by their self-interests, therefore managers would try to maximize their own utility. This utility includes both salaries/bonuses and capital gains from stock options etc., as well as nonmonetary elements such as leisure, prestige and power; hence a manager's utility that is obtained like a stockholder, i.e. increases in the value of the stock, dividends etc. constitutes only a portion of his or her

total utility. If increasing the rest of their utility even at the expense of this portion provides managers with a higher total utility, they will do so. Herein lies the cruciality of the second assumption. If this portion is very small as postulated by the assumption, the managers may take decisions with almost complete disregard of the stockholders' benefits. By one of the other assumptions of the authors however, knowledge is costly and perfect knowledge is unobtainable, therefore stockholders are not in a position to perfectly judge the performance of the firm and the extent to which they are abused. Both this imperfect judgment and taxes refrain investors from switching between stocks frequently. Consequently, although they would like to obtain maximum gains, they usually content themselves with submaximum, satisfactory levels.

But diffuse ownership is not the only reason of such phenomena. Large size is another one. Irrespective of ownership structure, those at the top of large firms "must delegate authority to others ... because [their] own personal capacity to handle information and decisions is limited at a level below the amount of information and problems generated by the organization. [Monsen and Downs, 1965; p.230]" This usually results in the development of a hierarchical structure in such firms. But since perfect knowledge is unobtainable by one of the aforementioned assumptions, superiors cannot judge subordinates objectively and therefore promote those that impress them best; consequently, subordinates "tend to screen information in their possession so that only data

favourable to them are passed upward to their superiors. [Monsen and Downs, 1965; p.228]" Furthermore, superiors may prefer subordinates who put the former's goals in front of those of the owners, therefore only "information that verifies the desires of the superiors, or proves that their decision were wise [Monsen and Downs, 1965; p.229]" may be passed upward. Finally, since people are assumed to be primarily motivated by their self-interests, "managers at every level tend to carry out only part of the orders given to them [Monsen and Downs, 1965; p.229]", to the extent that this is possible, the selection being based on their own utility maximization. All combined, these effects may cause 'substantial' deviation from the profit maximization behaviour. This is one of the reasons why size is commonly included as a statistical control variable in empirical works, as we will do in our own research, too.

In contrast to the Monsen and Downs study that compared the managers of diffuse ownership firms with the (owner-) managers of concentrated ownership firms, Donaldson compared the managers and the stockholders of diffuse-ownership firms (Donaldson, 1963). According to Donaldson, shareholders constitute one of the many groups that have a vested interest in the corporate entity, others being consumers, employees etc. "The one thing which all groups have in common is, of course, the corporation itself as a legal, economic and human entity. [Donaldson, 1963; p.119]" In fact, firms can be defined as "legal fictions which serve as a nexus for a set of contracting relationships among individuals, [where legal fiction

means] the artificial construct under the law which allows certain organizations to be treated as individuals. ...There is in a very real sense only a multitude of complex relationships (i.e. contracts) between the legal fiction (the firm) and the owners of labor, material and capital inputs and the consumers of output. [Jensen and Meckling, 1976; pp. 310-311]" In this light, "the overriding consideration will be the economic and financial strength, continuity and growth of [the] enterprise. [Donaldson, 1963; p.119]" Herefrom, questions arise "whether or not professional management, in the pursuit of the best interests of the corporation as it sees them, will be lead to the same standards for financial decisions as would be proposed by an informed professional investor seeking the best interests of corporate ownership [Donaldson, 1963; p.117]". Reviewing capital budgeting, accelerated depreciation and stock options, Donaldson concludes that this need not be the case. Similarly, considering the cutoff rate for acceptable investment opportunities, we see that a usual standard is the 'cost of capital'. But managers' and stockholders' concepts of 'cost' may be quite different. The former will tend to calculate the out-of-pocket costs, while the latter will tend to work with the 'opportunity cost' taking into account what could be done with the money outside the company, perhaps even in the competitors. By the same token, managers will prefer to use retained earnings over long-term debt as a source of long-term funds, but a pure stockholder, i.e. one who is not simultaneously a manager of the firm, may well prefer

the reverse. Following the same line of reasoning, we see that the attitudes of the managers and the pure stockholders toward risk will be different, too. "The professional manager finds his own present and future intimately bound up with that of the corporation [Donaldson, 1963; p.127]" while the stockholder "sees the circumstances of the individual corporation in the context of a portfolio decision. [Donaldson, 1963; p.128]" Therefore, assuming that people are generally risk-averse, the managers will desire to reduce the risk directly attached to the corporation by diversifying across products and markets and by adjusting the leverage of the company. On the other hand, the stockholders could prefer the company to maintain a high risk-high return position and to adjust their own overall risk by the selection of the other assets in their portfolios. Incidentally, Mosen and Downs postulate similarly that diffuse-ownership managerial firms will be more likely to avoid risky decisions, because the riskier alternatives, e.g. higher variability of earnings, will raise the probability of declining earnings in a given year which may result in an ousting of the management (Mosen and Downs, 1965). Underlying the hypothesis is also the reasoning that excellent performance on the part of management may earn them far less remuneration than a failure of equal size could cost them, i.e. loosing their jobs (Palmer, 1973). "This asymmetry ...is heightened by the fact ...that exceptionally good performances raise the stockholders' expectations for future good performances, so that if managers expect not to be able to repeat such

performances, they will never have any incentive to report higher than normal profit rates [Palmer, 1973; p.228]". All these considerations gave rise to the hypotheses that the characteristics of manager-controlled and owner-controlled corporations will generally be different. In particular, it can be expected that manager-controlled firms will be both less profitable and less risky than owner-controlled firms.

Empirical works on the subject began to appear largely in the mid 1960's. Some of these works concentrated on the effect of ownership type on the rates of return, others concentrated on its effect on the riskiness of the enterprise, still others attempted to emphasize both aspects. A prelude to the period was Larner's article, the aim of which was to establish to what extent management control actually existed among the large nonfinancial corporations in the first half of the 1960's and to compare the situation with that of 1929, the time on which Berle and Means had based their study (Larner, 1966). To this latter end, Larner used the same sample size, definitions, procedures and classification as had Berle and Means, minor modifications aside. The most important of these modifications is the border between minority-controlled and management-controlled firms. Postulating that the larger the size of the corporation under consideration and the wider dispersed its stock, the lower the limit differentiating between the two types should be set, he chose 10% instead the 20% used by Berle and Means as the boundary between management-controlled and minority-controlled firms. Larner found out that

management-control among the 200 largest nonfinancial corporations in the US had increased from 1929 to 1963 both in terms of their number and - even more dramatically - in terms of the assets they control as a proportion of all the firms in the respective samples. Moreover, private ownership had disappeared from the sample altogether. Larner noted that some firms were associated very closely with a single family, although their stock was very dispersed, e.g. only 1.32% being owned by a family under question. But, he argued, it was appropriate to classify these firms as management-controlled, since their domination was not due to stock ownership, but due to "their strategic position in management and the traditional identification of the corporation with the family. [Larner, 1966; p.785]"

Like Larner, early empirical studies took essentially the same path as Berle and Means in classifying the firms. However many of them, though not all (McEachern, 1976), differentiated between two categories only; e.g. Kamerschen, and Palmer combined the four categories of Berle and Means into a single one and distinguished between (ultimately) management-controlled and nonmanagement- (Kamerschen, 1968) or owner- (Palmer, 1973) controlled firms. Many studies (Monsen, Chiu and Cooley, 1968; Boudreaux, 1973; Elliott, 1972; Radice, 1971; Sorensen, 1974) used similar classification rules which however left firms with intermediate ownership concentrations out of both classes since these authors set out to compare the corporations on the extreme ends of the spectrum only and were wary that intermediate cases would

only blur the picture. All these classifications concentrated on the shareholdings of the largest shareholder only. In contrast, Holl tried to take care of more than one large shareholders when formulating a classification (Holl, 1975). It will be recalled that Larner had postulated a negative relationship between the size of the firm and the percentage of stock needed for control, but that he used this rule only to determine the limit percentages at different points in time. Kania and McKean took this reasoning one step further by formulating different rules for differently-sized firms at the same point in time (Kania and McKean, 1976). But the basic pattern of 'discrete' classes of ownership types was preserved in all these classifications. The following period saw the rise of 'continuous measures' along with the use of such 'discrete classes' as we shall see in later parts of this review.

The empirical studies that we have just seen tried to discern the effect of ownership type on certain characteristics of corporations, but they differed from one another with respect to the affected characteristics that they were interested in. Some concentrated on rates of return as indicators of performance, others set out to discover the implications on risk, still others investigated issues ranging from leverage to investment. Some authors preferred to use a single dependent variable, while others made use of multiple dependent variables in a single study. The scholars who investigated the effect of ownership type on corporate characteristics from a shareholder point of view were faced with a dilemma.

Should they use accounting-values based dependent variables or market-values based dependent variables? Boudreaux argued that market return "relies largely upon a 'second party opinion' about management decisions to be made in the future, and is therefore not necessarily an accurate measure of past decision processes of management [Boudreaux, 1973; p.366]", therefore accounting-values based measures are more appropriate. On the other hand, McEachern took the position that since alternative accounting techniques can give rise to ambiguities and since stockholders - being compensated directly by the stock price when they sell their share and not by the reported profits of the firm although the latter may indirectly effect the former - are likely to be interested more directly in stock price rather than profits, market-value based measures should be preferred (McEachern, 1976). In a later study, Demsetz and Lehn incorporated both types of measure in the same research noting that "stock market rates of return reflect expected future developments [whereas] today's accounting rate of return is influenced by past investment expenditures (and other carryover accounting entries) [Demsetz and Lehn, 1985, p.1160]", therefore neither of them is a perfect measure of today.

While investigating the effect of some variable on another one we must take care of other variables that may cause a spurious relationship between the former two and distort our perception of the real relationship. One such variable on which many studies agree in the context of the effects of ownership structure on corporate performance is

the industry type, i.e. the particular industry in which the corporation operates. All industries differ in structure to some extent (Sorensen, 1974) and many factors like particular technologies needed and competitive effects such as the concentration ratios (4-firm, 8-firm etc.) facing the firms (Boudreaux, 1973) which influence the firm characteristics and performance are industry-specific. Furthermore, details of accounting conventions may differ from industry to industry confounding the statistical analysis (Kania and McKean, 1976). "Rather than measuring these factors independently, and since [we are usually] more interested in adjusting for such effects than in specifying them, an overall 'industry' effect which captures such influences is more efficient. [Boudreaux, 1973; p.367]" The standard way of dealing with the industry effect has been the use of dummy variables in regression analyses (Boudreaux, 1973; McEachern, 1976; Radice, 1971), although some researchers followed other approaches such as conducting a separate analysis for each industry (Kania and McKean, 1976; Sorensen, 1974).

Another variable of equal importance has been 'size'. Although nearly all studies agree that corporate size must be taken into consideration to obtain meaningful results for the effects of ownership structure, there exists no consensus upto this day about the most appropriate way of measuring size and many suggestions of the early days still preserve their currency. Kamerschen proposed five different ways of measuring size: Sales, value added, total assets, net worth, and number of employees (Kamerschen, 1968). As Boudreaux noted, although value

added is theoretically appealing, this data is almost always difficult to obtain and therefore value added is commonly proxied by assets or sales (Boudreaux, 1973). "Assets are superior to equity ...because it is the size of the total lump of capital, however financed, that determines the opportunities available to the firm. [Kamerschen, 1968; p.438]" By the same token, assets can be argued to be a more relevant measure than the number of employees (Kamerschen, 1968). Furthermore, it has been established that sales and assets are highly correlated (Boudreaux, 1973; Kamerschen, 1968). Although these two can differ significantly for individual industries (Kamerschen, 1968), sales and assets are almost completely equivalent, if technological effects are adjusted for using industry variables (Boudreaux, 1973). In the light of this discussion, it is not surprising to find that the field is divided between studies using assets (Holl, 1975; Kamerschen, 1968; McEachern, 1976; Radice, 1971) and sales (Boudreaux, 1973; Elliott, 1972; Kamerschen, 1968; Kania and McKean, 1976; Monsen, Chiu and Cooley, 1968). The task however is not completed with the choice of a measure. The next question is the size in which year? Various researchers have adopted various solutions. Kamerschen (Kamerschen, 1968) and Holl (Holl, 1975) used the size at an intermediate year, Elliott (Elliott, 1972) averaged the yearly sizes over his whole research period, Radice (Radice, 1971) opted for the opening size, McEachern (McEachern, 1976) and Kania and McKean (Kania and McKean, 1976) in contrast took the closing size. Reasons for the choice were usually not mentioned; only Kamerschen assured

that choices other than his' could have been used equivalently (Kamerschen, 1968).

Industry type and size have been by far the statistical control variables that received most of the attention. However, they were not the sole ones that were used. Many of the others were though confined to a single study and at times can reflect choices that could have been handled elsewhere. For example, Kamerschen preferred not to use the industry-type variables approach, but to define a separate variable for each industry characteristics that he regarded as relevant (Kamerschen, 1968). Some authors worked with yearly rather than averaged-over-the-period ratios and introduced time variables to account for the possibility of the ensuing complications (Kania and McKean, 1976; Monsen, Chiu and Cooley, 1968). Furthermore, some of the researchers interested in a 'rate of return' or 'risk' as a dependent variable included the other one of those variables as an independent variable (Boudreaux, 1973; Kania and McKean, 1976; McEachern, 1976). Since however both of them are seen as possible dependent variables affected by the ownership structure, their inclusion as independent variables could blur the relationship between the ownership structure and the dependent variable by masking that part of the effect of ownership structure that operates through the newly included independent variable and this practice was usually not followed.

Another characteristics of this period was the concentration of research on samples from the United States and the United Kingdom. These samples consisted of

nonfinancial companies. The most commonly used methods were regression analyses (Kamerschen, 1968; McEachern, 1976; Radice, 1971), analyses of variance and covariance (including t-tests for differences in two means) (Boudreaux, 1973; Elliott, 1972; Kania and McKean, 1976; Monsen, Chiu and Cooley, 1968; Sorensen, 1974), and correlation analyses (Kamerschen, 1968; Kania and McKean, 1976; Radice, 1971). The majority of the research built its hypotheses on the main body of the theory that had been developed until that time. This theoretical background, which had been the subject matter of the previous sections of this review, gave rise to the following hypotheses: The characteristics of manager-controlled and owner-controlled corporations will generally be different. In particular, it can be expected that manager-controlled firms will be both less profitable and less risky than owner-controlled firms. The aim of the empirical research was then to establish whether this line of reasoning was in accordance with the observed real situation (Boudreaux, 1973; Elliott, 1972; Holl, 1975; Kamerschen, 1968; Kania and McKean, 1976; Monsen, Chiu and Cooley, 1968; Radice, 1971; Sorensen, 1974). We proceed to see what the results were.

Kamerschen found only weak support for the thesis that nonmanagement controlled firms perform better (Kamerschen, 1968). His results indicate that the barriers-to-entry and size are much more important factors in explaining the profit rates. In general, the higher the barriers to entry into the business and the larger the size of the firm, the more profitable the business tends to be. Elliott, too,

concluded that in general control-type did not cause significant differences in either the rates of return for the owners or the growth variables or the riskiness of the enterprise (Elliott, 1972). The firm size was a bit more important in explaining corporate characteristics, but the rates of return and the risks born were not essentially effected by size. Moreover, none of the interaction terms was a significant determinant of return and they could not be said to influence the other corporate characteristics either. Similarly, Sorensen found only statistically insignificant support for the superiority of owner-controlled firms in regard of the rates of return (Sorensen, 1974). Other characteristics, too differed generally in a statistically insignificant way in his research. Therefore, Sorensen drew the conclusion that the problems in the modern corporation were due to their sheer size and the ensuing managerial and bureaucratic inefficiencies and not due to their type of control ,as we had seen in the discussion of Mosen and Downs previously (Mosen and Downs, 1965). But there was no lack of studies pointing just in the other direction. For instance, Mosen, Chiu and Cooley concluded that the effect of size on their performance variables was next to negligible, but that control type, industry type and control-industry interaction were all important, statistically significant explanatory factors, the strongest among them being 'control type' (Mosen, Chiu and Cooley, 1968). Still different results were produced by Radice's work who found both higher profit rates and higher growth rates for owner-controlled firms, although he had expected lower

growth rates for such firms (Radice, 1971). Conducting analyses on each of the three industries involved separately, Radice found that control-type was especially important in the case of textile firms. For the food industry, owner-controlled firms had slightly lower profit rates than manager-controlled firms. The regressions showed persistently the effect of size to be insignificant. These results only partially confirmed the a priori expectations of Radice and he suggested several reasons for the discrepancy. First, all the firms in the sample had a hierarchical organization structure. As Monsen and Downs (Monsen and Downs, 1965) had also discussed "even though controllers at the top might be aiming above all at a high rate of profit, organizational phenomena ...might result in the modification of this goal at a lower level in the hierarchy, where non-propertied managers will be motivated [Radice, 1971; p.561]" by quite different factors. Second, owners may also have nonprofit goals. A last point may be that the restraint imposed by the capital market onto the management may have been underestimated. Similarly, Boudreaux, and Holl found owner-controlled firms to have higher and more variable rates of return and Holl found them to have lower growth rates, too, although only the results of Boudreaux were statistically significant (Boudreaux, 1973; Holl, 1975). The industry-type effect was also statistically significant, and in the case of return its interaction with control type was also statistically significant (Boudreaux, 1973). In contrast, size turned out to be insignificant as a determinant of return (Boudreaux, 1973;

Holl, 1975), however according to Boudreaux this should not be taken as evidence that size is not important as an explanatory variable, rather its effect may have been captured by the industry type variables; but as long as the aim is to keep the effect constant and the investigation does not center on it, we need not worry which explanation is true (Boudreaux, 1973). In the light of these examples, it is not surprising to find that a study by Kania and McKean reached mixed conclusions: While in general owner-controlled firms and manager-controlled firms turned out to be alike, some characteristics were nevertheless different, e.g. the growth rate of sales (Kania and McKean, 1976).

Although the a posteriori results of these works were generally quite different one from another, their a priori hypotheses were almost identical, as we had outlined before. Palmer, however, reasoned very differently before engaging in an empirical investigation (Palmer, 1973). He claimed that since the stockholders of management-controlled firms "are too small and diffused to be able to take any action against the manager [Palmer, 1973: p.228]", "those managers ...should be able to report nonrepeatable high profit rates in one year with little worry about not satisfying the increased expectations of the stockholders in following years. [Therefore, it] is among the owner-controlled firms that one should observe more stable profit rates over time. [Palmer, 1973; pp. 228-229]" In his empirical work, Palmer found some support, albeit not very strong, for this line of reasoning. His research also showed that large firms

tended to be less risky than small firms. However, Boudreaux criticized the methodology used by Palmer and especially his choice of the dependent variable (Boudreaux, 1975). Taking this criticism into account, Palmer repeated his tests with the necessary modifications (Palmer, 1975). The new results were very much like the old ones and the basic conclusions remained unchanged. McEachern tried to reconcile Palmer's viewpoint with that of the other scholars (McEachern, 1976). According to McEachern, an owner-manager will take comparatively much risk, since he or she has the most to gain and the least to lose from the consequences. Less risk-taking will be managers of firms where owner-control is extremely weak. They have neither much to gain nor much to lose. But most risk-avoiding will be the managers of firms that have a strong owner who is not much involved with the daily affairs of the business, since the profits from the risky actions will most likely go to the owner, but in the case of a failure the manager will be easily fired.

This leads us to the period from the mid 1970's to the mid 1980's which witnessed important developments in the understanding of the advantages and disadvantages of the separation of ownership and control. Fama and Jensen approached the issue by considering the 'residual risk': "The residual risk [is] the risk of the difference between stochastic inflows of resources and promised payments to agents [and] is borne by those who contract for the rights to net cash flows. [Fama and Jensen, 1983/1; p.302]" These latter are called the residual risk-bearers. In corporations, the residual risk-bearers are the

stockholders. In fact, "the common stock residual claims of [corporations] are unrestricted in the sense that (1) they are freely alienable [, e.g. in contrast to a partnership,] (2) they are rights in net cash flows for the life of the organization [, e.g. in contrast to a professional partnership where they are limited to the serving time of individuals,] and (3) stockholders are not required to have any other role in the organization. [Fama and Jensen, 1983/2; p.345]" Such claims have both their advantages and disadvantages. The major disadvantage is the existence of an important agency problem as was shown by Jensen and Meckling (Jensen and Meckling, 1976). According to Jensen and Meckling "an agency relationship [is] a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent [Jensen and Meckling, 1976; p. 308]." In most agency relationships there will be positive monitoring and bonding costs. Furthermore, even with optimal monitoring and bonding activities, "there will be some divergence between the agent's decisions and those decisions which would maximize the welfare of the principal [Jensen and Meckling, 1976; p.308]", due to which there is a reduction in the welfare experienced by the principal. This cost is called the residual loss. Agency costs are defined as the sum of all these components. "The relationship between the stockholders and the managers of a corporation fit the definition of an agency relationship [Jensen and Meckling, 1976; p.309]", the stockholders being the principals and

the managers being the agents. After a thorough analysis based on a set of assumptions Jensen and Meckling conclude that when an owner-manager sells part of his or her shares, the value of the firm will be reduced because the owner-manager has to pay only part of the cost of the nonpecuniary benefits he or she consumes. However the decline in the total value of the firm will finally be entirely imposed on the owner-manager (Jensen and Meckling, 1976). In the absence of monitoring and bonding activities this decline is the residual loss. It should be noted that the welfare loss the owner-manager incurs, however, is less than the decline in the value of the firm, because the cash he or she receives can apparently be put to better use with more satisfaction, else the owner-manager would not have sold this share. If monitoring or bonding is introduced in the situation, Jensen and Meckling show that incurring these costs can move people to a new equilibrium point which is the same as the old one for potential buyers but is more advantageous for the owner-manager. Moreover, as there are agency costs associated with the use of equity, there are also agency costs associated with the use of debt. It is these agency costs that deter the entrepreneur from borrowing almost all of the capital. In fact, the total agency costs will be minimized at a debt-equity ratio that is neither 0 nor 1.

According to Jensen and Meckling, "the reduced value of the firm caused by the manager's consumption of perquisites ... is 'non-optimal' or inefficient only in comparison to a [hypothetical] world in which we could

obtain compliance of the agent to the principal's wishes at zero [or lower] costs. [Jensen and Meckling, 1976; pp. 327-328]" In the real world however, these costs are unavoidable. "Finding that agency costs are non-zero ...and concluding therefrom that the agency relationship is non-optimal [is a fallacy] equivalent ...to comparing a world in which iron ore is a scarce commodity (and therefore costly) to a world in which it is freely available at zero resource cost, and concluding that the first world is 'nonoptimal'. [Jensen and Meckling, 1976; p.328]"

By one of their assumptions, Jensen and Meckling had concentrated on a '1-period' world. Fama developed the theory in the 'multiperiod' direction (Fama, 1980). According to Fama, if "the manager is [not the] sole security-holder and in the absence of some form of full ex-post settling up, [he or she will have] an incentive to consume more on the job than is agreed in his [or her] contract. [Fama, 1980; p.296]" If contracts are written on an ex-ante basis, the risk-bearers (shareholders) will require a premium from the manager for the possibility that he or she consumes more than it had been agreed on in his or her contract and then leaves the firm without giving the risk-bearers the chance to recover the loss through a revision process on his or her wage. But on the assumption that a new firm that employs him or her will behave with the knowledge of his or her cheating, i.e. that the manager is still subject to ex-post settling up, this premium will be an uncompensated loss to the manager. Therefore, the manager will contract "to accept, at the

end of each period, his ex-post measured marginal product rather than its ex-ante expected value so that there is, period by period, full ex-post settling up with his current firm. [Fama, 1980; p.303]" It should be noted that a multiperiod world is crucial to the functioning of the above system, since "in a 1-period world there can be no enforcement of contracts through a wage revision process imposed by the managerial labor market. [Fama, 1980: p.304]" It is also noteworthy that since "there may not be perfect substitutability between quantity and quality of particular services [Klein, 1983; p.368]" (two bad cooks are not necessarily a substitute for a good one), letting managers shirk and discounting their wage will not necessarily provide a solution either. In many cases "the gain to the shirker and therefore his acceptable compensating wage discount [will be] less than the cost to the firm from the shirking behaviour. [Klein, 1983: p.368]"

Thus, we see that there are problems associated with the separation of residual risk bearing from decision management. To alleviate these problems decision management - the initiation and implementation of decisions - is separated from decision control - the ratification and monitoring of decisions - (Fama and Jensen, 1983/1; Fama and Jensen, 1983/2). "The costs of ...mechanisms for [the above-mentioned separation] are part of the price that open corporations pay for the benefits of unrestricted common stock residual claims. [Fama and Jensen, 1983/2; p.332]" On the other hand, the advantages of this separation approach include

specialization of management and of risk bearing, and unrestricted risk sharing among residual claimants. For, combining residual risk bearing, decision management and decision control reduces the agency problems but causes efficiency losses "because decision agents must be chosen on the basis of wealth and willingness to bear risk as well as for decision skills. [Fama and Jensen, 1983/2; p.332]" Also, residual claimants may have to forgo residual risk reduction through portfolio diversification, a fact that raises the cost of risk-bearing services (Fama and Jensen, 1983/2). The theory behind this equilibrium point of view was strengthened by Demsetz (Demsetz, 1983). Since the owner-manager in a real firm receives compensation consisting of three components, "pecuniary wages of management, known amenities of office, and profit of owner [, the] behaviour of such an owner-manager surely is guided by utility maximization, not simply the pursuit of profit. ...Because a good part of a real owner-manager's life is on the job, he very well may decide in favor of on the job consumption. [Demsetz, 1983; pp. 378-379]" As long as the markets for the firm's goods, for labor, and for the risk-corrected return of investors are competitive, the owner-manager cannot pass the resulting costs onto the customers, the workers or the investors. Therefore, he or she must pay for on-the-job consumption by either a reduction in the pecuniary wages of management or in owner's profit. There will be an equilibrium with a non-zero on-the-job consumption, at which the firm produces goods in the cheapest way (Demsetz, 1983). Below this equilibrium point of on-the-job consumption the firm

would have to pay the owner-manager a higher pecuniary price than what the on-the-job consumption is worth to the firm; the same is also true for the other employees. Monitoring will change the equilibrium point but will not change the basic conclusions. If the owner-manager decides to turn the management of the firm to a specialized team while retaining the ownership, he or she will try hard that this management consumes on the job as little as possible, so that he himself or she herself can get higher pecuniary returns to compensate (at least partially) for his or her loss of on-the-job consumption. Therefore, there will be two opposing forces associated with the separation of ownership and control, one leading to a reduction in the on-the-job consumption, the other to an increase in the monitoring costs.

The costs of separation and combination depend on the case at hand. Fama and Jensen postulate that the benefits of separation "are likely to outweigh the costs of controlling the agency problems [Fama and Jensen, 1983/2; p.333]" "when there are important economies of scale in production that (i) can be realized only with a complex hierarchy that makes use of specialized decision skills throughout the organization, (ii) generate large aggregate risks to the residual claimants, and (iii) demand large amounts of wealth from residual claimants to purchase risky assets and to bond the payoffs promised to a wide range of agents in the organization. [Fama and Jensen, 1983/2; p.333]" Each organization chooses the scheme that minimizes its total costs (Fama and Jensen, 1983/1). In another paper, Jensen elaborated on this point (Jensen,

1989). The conventional 'public corporation', he said, "remains a viable option ...in industries [where there are] growth companies whose profitable investment opportunities exceed the cash they generate internally. ...Companies choosing among a surplus of profitable projects are unlikely to invest systematically in unprofitable ones, especially when they must regularly turn to the capital markets to raise investment funds. [But] where long-term growth is slow, where internally generated funds outstrip the opportunities to invest them profitably, or when downsizing is the most productive long-term strategy ... the pressures on management to waste cash flow through organizational slack or investments in unsound projects is often irresistible. It is precisely in these sectors that the publicly held corporation [will perform badly]. [Jensen, 1989; p.64]" There are also differences in monitoring costs of different firms due to their size (Jensen and Meckling, 1976) and the environment in which they operate (Demsetz and Lehn, 1985). Small firms and "firms that transact in markets characterized by stable prices, stable technology, stable market shares [etc.] are firms in which managerial performance can be monitored at relatively low cost. [However, large size and] frequent changes in relative prices, technology and market shares [make it more difficult and costly to disentangle] the effects of managerial behaviour on firm performance from the corresponding effects of ...exogenous factors. [Demsetz and Lehn, 1985; p.1159]" More generally, it can be said that "the ownership structure likely to maximize the value

of the firm's assets depends on the technology, on the tasks required of the firm's labor force, on the desired scale of operation [and the competitively viable size (Demsetz and Lehn, 1985)], and on the managerial ability of potential owners. No single ownership structure is suitable for all situations [Demsetz, 1983; p. 386]". "The advantages and disadvantages to the firm's shareholders of greater diffuseness in ownership structure [Demsetz and Lehn, 1985; p.1156]" result in different equilibria in terms of the distribution of shareholdings for different firms. Overall we see that people may choose among a range of ownership structures, provided that they are elastic enough with respect to the other factors, e.g. they are not constrained by the desire to buy shares only in a very particular industry. For example, in the media industry where control of, say, a widely read newspaper gives the opportunity to influence public opinion, the owner may be unwilling to hand over control to somebody else, e.g. a manager, and therefore keep a large percentage of shares. Incidentally, two separate theories about the behaviour of 'media' companies have been put forward (Blankenburg and Ozanich, 1993). The first one is the general-traditional theory which says there will be "relatively lower profits in a company whose stockholder-owners are separate from management. [Blankenburg and Ozanich, 1993; p.70]" The second one in contrast postulates "that the more detached the owners are from journalistic practice, the greater pressure they will apply on management for consistent, high and growing profits. Distant owners are expected to put profits first, whereas a local owner values

journalistic quality more highly than profits. [Blankenburg and Ozanich, 1993; p.69]" In an empirical research, Blankenburg and Ozanich found support for the latter rather than the former view. As a reason, these authors suggest "the monopoly power that newspapers traditionally enjoy in their markets, one of the results of which is ample profit margins. [Since a] less-than-maximum profit in the newspaper industry is still a substantial profit [, owners] and managers [may have] latitude to choose additional goals [Blankenburg and Ozanich, 1993; pp. 74-75]". Returning to the main theme, we note that "specialization of business activity into one set of rights that [is identified] as share ownership ...and a second that [is called] managerial control ...allows persons the option of combining 'ownership' and control in any mixture that they wish, given the budget constraints they face. [Demsetz, 1983; p.383]" This "raises the utility level achievable [Demsetz, 1983; p.383]" by them, whereas it lowers the costs to society of investment funds and control.

Demsetz and Lehn based themselves on this theoretical background to postulate that ownership concentration and profit rate are unrelated (Demsetz and Lehn, 1985). The tests they conducted on their data showed indeed that there was "no significant relationship between ownership concentration and accounting profit rate, and especially no significant positive relationship. [Demsetz and Lehn, 1985; pp. 1175-1176]" In this study, Demsetz and Lehn exemplified one of the first uses of 'continuous measures' of ownership concentration. Actually, when we compare the

empirical research of the recent years with that of the 1960's and early 1970's, we see some important differences. The newer articles recognized generally two dimensions of the ownership structure, the location of control and the degree of control, and to measure the latter they usually resorted to continuous measures. This change in the nature of the empirical work took place gradually. For instance, in 1980 Bothwell's work was quite reminiscent of the empirical research we have already seen; he continued to use discrete classes for control and taking care of the market structure, he concluded that when market forces were weak, there were substantial performance differences between owner-controlled and manager-controlled firms (Bothwell, 1980). Incidentally, it has been suggested recently (Santerre and Neun, 1993) that stockholder constraints are only one group among others such as product market constraints, managerial labor market constraints, and capital market constraints, from all of which the managers must be exempt at least to some degree in order "to successfully deviate from profit maximization and pursue [Santerre and Neun, 1993; p.466]" their own goals. Large firms usually possess a degree of monopoly for their products having thus some freedom from product market constraints (Santerre and Neun, 1993) and industry variables have been deemed sufficient to isolate the remaining ones from the stockholder constraints, when the aim is to investigate the latter's effect on corporate performance. Returning to the times of Bothwell, we see that a somewhat more interesting work was that of Thonet and Poensgen (Thonet and Poensgen, 1979). This work is one

of the few studies that are concerned with a country outside the United States and the United Kingdom. The first part of this study about Western German firms followed the conventional expectations of the previous period, namely that management-controlled firms will have lower profitability, assume less risk and grow faster. These expectations were almost totally disconfirmed by the test results. If there was any difference between firms, then management-controlled firms were more profitable and grew slower. The second part of the study was concerned with the behaviour of subsidiaries and introduced some more original ideas. Here, the authors presented three alternative paths of reasoning for subsidiary behaviour:

- 1) Subsidiaries resemble under themselves and differ from parent companies whatever the control-type of the latter.
- 2) The ownership of subsidiaries is highly concentrated, hence they should behave like owner-controlled firms.
- 3) Subsidiaries resemble their parents, thus subsidiaries of owner-controlled parents have the characteristics of owner-controlled companies and subsidiaries of manager-controlled parents have the characteristics of manager-controlled companies. Exceptions may be subsidiaries "whose business is so remote from that of the parent or so unimportant that the parent's management either does not wish to exert close control or does not feel competent to do so. [Thonet and Poensgen, 1979; p.34]"

The test results tended to imply that owner-controlled parents, subsidiaries of owner-controlled parents and companies with the majority of their stock owned by banks behave alike, whereas manager-controlled parents and subsidiaries

of manager-controlled firms constitute a separate category. All the differences were however statistically insignificant. The importance of the study lies though in its explicit appreciation that not only the percentage of the stock owned by the large or largest shareholders is important but also the nature of this shareholder, e.g. whether it is a bank or another corporation.

The concept of the 'nature of the largest shareholder' was formally dissociated from the 'percent shareholdings' by Cubbin and Leach (Cubbin and Leech, 1983). These scholars also noted that 'discrete classes of control based on the percentage shareholdings' were usually "defined on the basis of some arbitrary statistical criterion in terms of the size of a controlling shareholding [Cubbin and Leech, 1983; p.351]", the criterion varying from as low as 4% to as high as 25%. Most of the studies had ignored shareholder dispersion altogether, although some of them tried to deal with the problem through subjective judgments, e.g. Kania and McKean varied the owner vs. manager-control limit with the size of the corporation, since dispersion usually tends to increase with size (Kania and McKean, 1976). According to Cubbin and Leach however, the dispersion of the smaller shareholdings is quite relevant to control. Unless 100% of the stock belongs to the same entity (e.g. person), there are "some owners who are excluded from effective control. [Cubbin and Leech, 1983; p.354]" Therefore, previewing a sharp discontinuity at a certain percentage point is inappropriate. Actually the possession of shares may affect the behaviour of firms in two distinct ways,

through the location of control and through the degree of control. The former is a discrete variable describing the status of the controller and assumes values such as individual, financial institution, another firm, internal, external etc. The latter is "a continuous variable which measures the discretion which the controlling group has [in order] to pursue its own objectives and is ultimately related to its voting power. [Cubbin and Leech, 1983; p.355]" In accordance with this insight, we, too, will consider the degree of control as a continuous variable in our own research. As Cubbin and Leech remind us "minority control is only ever a matter of degree [and] in empirical studies of behaviour and performance, a continuous measure of the degree of control [is] more appropriate. [Cubbin and Leech, 1983, p.365]" The effect of the location of control constitutes a separate and parallel line of investigation.

Such a continuous measure approach was used by - as already mentioned - Demsetz and Lehn (Demsetz and Lehn, 1985) and by Leach and Leahy (Leach and Leahy, 1991). Specifically, these researchers considered the percent of shares owned by the largest shareholder (Leach and Leahy, 1991), by the largest five (Demsetz and Lehn, 1985; Leach and Leahy, 1991), ten (Leach and Leahy, 1991) and twenty (Demsetz and Lehn, 1985; Leach and Leahy, 1991) shareholders respectively and approximations to a Herfindahl measure of concentration (Demsetz and Lehn, 1985; Leach and Leahy, 1991). The Herfindahl measure is calculated by summing the squared percentage of shares controlled by each shareholder. In practice, it is usual

to calculate an approximation over only a few largest shareholdings. In fact, it can be shown theoretically that this approximation is generally quite good and converges rapidly to the true Herfindahl measure (Cubbin and Leech, 1983; Demsetz and Lehn, 1985). "The value of [this measure increases] when there are few stockholders and/or greater degrees of inequality in the size of the holdings. [Hill and Snell, 1989, p.35]" Finally, as Cubbin and Leach have shown, when shareholder dispersion increases (i.e. the Herfindahl measure falls), the percentage of shares that should be possessed by the largest shareholder for control falls (Cubbin and Leech, 1983). By running a multiplicity of regressions, Leach and Leahy found that owner controlled firms had higher profit rates and higher growth rates (Leach and Leahy, 1991). Perhaps more importantly however, they postulated that ownership structure affects "behaviour in two ways: (i) ...through the effects of ownership concentration on owners' incentives; and (ii) [through] the concentration of voting power [Leach and Leahy, 1991, p.1427]". They argued that power is essential in determining control characteristics and therefore that a controlling shareholding in a subsidiary company acts to limit managerial discretion whether the parent company is owner-controlled or not. In Berle and Means's terminology, it is the immediate control which is essentially important rather than the ultimate control.

The effects of the location of control were considered by Holderness and Sheehan (Holderness and Sheehan, 1988). Their starting point was the consideration that institutional and individual majority-shareholders may

have different motivations. For instance, the latter may be motivated by the consumption of corporate resources at lower cost, while the former may be motivated by the prospect of publicly traded claims serving "as a foundation for a performance-based compensation scheme for the subsidiary's top executives. [Holderness and Sheehan, 1988, pp. 323-324]" The test results suggested that while firms with corporate majority-shareholders resembled diffused-ownership firms, firms with individual majority shareholders had nonsignificantly lower profitability. The impact of institutional ownership on firm performance was also examined by Chaganti and Damanpour, who found a weak positive relationship between the degree of stock ownership by outside institutions and the profitability of the firm (Chaganti and Damanpour, 1991). The reason they suggest is the pressure on fund managers to continuously report good profits. The fund managers in turn put pressure on the managers of the firms in their portfolios. The results of Chaganti and Damanpour's study also suggest that higher stock ownership by outside institutions will result in lower long-term debt-to-capital ratios.

As we saw in the works upto here, there was no consensus as to whether there is a relation between stock concentration and firm performance or not (Boudreaux, 1973; Carter and Stover, 1991; Demsetz and Lehn, 1985; Elliott, 1972; Hill and Snell, 1989; Holl, 1975; Kamerschen, 1968; Kania and McKean, 1976; Kroll, Wright and Theerathorn, 1993; Leach and Leahy, 1991; McEachern, 1976; Monsen, Chiu and Cooley, 1968; Palmer, 1973; Palmer, 1975; Radice, 1971; Sorensen, 1974). This lead Gedajlovic

to state a pair of hypotheses rather than a single one: "[A:] Stock concentration and organizational performance are positively related. [B:] Stock concentration and organization performance are unrelated. [Gedajlovic, 1993, p.737]" Since it is at best difficult "to ascertain the threshold level of stock concentration necessary to influence corporate decisions [, he treated] effective control as a continuous function of stock concentration, [which] is measured by the percentage of common stock ownership held by the largest stockholder. [Gedajlovic, 1993, p.737]" Using OLS regressions on a sample of Canadian firms Gedajlovic found hypothesis B to be much more strongly supported than hypothesis A.

As we also saw throughout this review, there was no unique variable to measure performance. Charreaux proposed that the variables for measuring profitability be grouped in two broad categories (Charreaux, 1991): The variables in the first group focus on the performance of the firm from the shareholders' point of view; as an example we can cite the return on equity. Those in the second group consider the global value of the firm. They do not mention how this value is shared between creditors and shareholders; an example for this group is return on assets. A good performance with respect to one of the groups does not necessarily imply an equivalent performance with respect to the other group. In our work, we will consider both points of view. This then lays the path which we will follow in the current research, to which we turn in the next chapter.

### III. HYPOTHESES

In this chapter, we elaborate on the hypotheses that will be tested in our research. While formulating the hypotheses, it has been aimed that the relationship between the ownership structure of the firm and its performance be investigated from multiple perspectives and that the scope of the research not be restricted to a single dimension. Therefore, to test the performance of a company, three main areas were selected: Profitability, capital structure and growth. These areas were selected because they figured prominently in the literature as the areas of potential performance differences due to the ownership structures of the firms. We have also seen throughout the literature review that there have been two main schools of thought in the area of the effects of ownership structure on corporate performance. The first one whose views are commonly called 'the managerial theory' argues that when the degree of control by owners is weak, firms will be less profitable, assume less risk and grow more rapidly (Bothwell, 1980; Boudreaux, 1973; Holl, 1975; Monsen, Chiu and Cooley, 1968; Monsen and Downs, 1965). The second one whose views could be called the 'neutral' (Charreaux, 1991; Demsetz and Lehn, 1985; Elliott, 1972; Gedajlovic, 1993; Kamerschen, 1968; Sorensen, 1974; Thonet and Poensgen, 1979) theory argues in contrast that no such relationships exist. Therefore, it is possible to formulate hypotheses in alternative ways according to which of the theories is taken as the basis. In what follows, we will formulate the hypotheses taking

the 'managerial' theory as a reference point. This does not mean however that we disregard or discredit the 'neutrality' theory. The question of which theory applies better in the environment of this research can be appropriately answered only after carrying out the tests on the data (Gedajlovic, 1993). With these considerations in mind we state our hypotheses as follows:

I. Ownership Structure and Profitability :

A. Hypotheses about profitability in general :

1) There is a positive relationship between the percent shareholdings of the largest shareholder and the return on assets.

2) There is a positive relationship between the Herfindahl measure of concentration of the remaining large shareholders and the return on assets.

3) There are differences between the returns on assets of firms whose major shareholder is a person (family or group of persons), a nonfinancial institution, or a financial institution.

4) There is a positive relationship between the percent shareholdings of the largest shareholder and the net profit margin.

5) There is a positive relationship between the Herfindahl measure of concentration of the remaining large shareholders and the net profit margin.

6) There are differences between the net profit margins of firms whose major shareholder is a person (family or group of persons), a nonfinancial institution, or a financial institution.

B. Hypotheses about profitability from the viewpoint of the shareholders :

i. Stock-market based assessment :

7) There is a positive relationship between the percent shareholdings of the largest shareholder and the rate of return of the stock.

8) There is a positive relationship between the Herfindahl measure of concentration of the remaining large shareholders and the rate of return of the stock.

9) There are differences between the rates of return of the stock of firms whose major shareholder is a person (family or group of persons), a nonfinancial institution, or a financial institution.

ii. Accounting data based assessment :

10) There is a positive relationship between the percent shareholdings of the largest shareholder and the return on equity.

11) There is a positive relationship between the Herfindahl measure of concentration of the remaining large shareholders and the return on equity.

12) There are differences between the returns on equity of firms whose major shareholder is a person (family or group of persons), a nonfinancial institution, or a financial institution.

## II. Capital Structure and Ownership :

13) There is a positive relationship between the percent shareholdings of the largest shareholder and the ratio of total liabilities to total assets.

14) There is a positive relationship between the Herfindahl measure of concentration of the remaining large shareholders and the ratio of total liabilities to total assets.

15) There are differences between the ratios of total liabilities to total assets of firms whose major shareholder is a person (family or group of persons), a nonfinancial institution, or a financial institution.

16) There is a negative relationship between the percent shareholdings of the largest shareholder and the ratio of long-term liabilities to total liabilities.

17) There is a negative relationship between the Herfindahl measure of concentration of the remaining large shareholders and the ratio of long-term liabilities to total liabilities.

18) There are differences between the ratios of long-term liabilities to total liabilities of firms whose major shareholder is a person (family or group of persons), a nonfinancial institution, or a financial institution.

19) There is a positive relationship between the percent shareholdings of the largest shareholder and the debt service ratio of the firm.

20) There is a positive relationship between the Herfindahl measure of concentration of the remaining large shareholders and the debt service ratio of the firm.

21) There are differences between the debt service ratios of firms whose major shareholder is a person (family or group of persons), a nonfinancial institution, or a financial institution.

22) There is a positive relationship between the percent shareholdings of the largest shareholder and the ratio of total liabilities to market value of the firm.

23) There is a positive relationship between the Herfindahl measure of concentration of the remaining large shareholders and the ratio of total liabilities to market value of the firm.

24) There are differences between the ratios of total liabilities to market value of firms whose major shareholder is a person (family or group of persons), a nonfinancial institution, or a financial institution.

### III. Ownership Structure and Growth :

25) There is a negative relationship between the percent shareholdings of the largest shareholder and the growth in the gross sales of the firm.

26) There is a negative relationship between the Herfindahl measure of concentration of the remaining large shareholders and the growth in the gross sales of the firm.

27) There are differences between the growth in the gross sales of firms whose major shareholder is a person (family or group of persons), a nonfinancial institution, or a financial institution.

#### IV. METHODOLOGY

##### A) Variables

We have already mentioned during the formulation of the hypotheses that we have aimed to investigate the relationship between the ownership structure of the firm and its performance from multiple perspectives and not to restrict the scope of the research to a single dimension. The same approach was used in the choice of the variables. The ownership structure was considered along both of its dimensions, namely the degree of control and the location of control (Cubbin and Leech, 1983; see also Chapter II). There is a common thread through nearly all the works we reviewed in Chapter II, namely that the largest shareholder occupies a special position among all the shareholders of a firm. If owners matter at all, then it is the largest shareholder who matters most. In tandem with this line of thought, a primary indicator of the degree of control is the percentage of shares that is possessed by the largest shareholder (Gedajlovic, 1993; Leach and Leahy, 1991; Santerre and Neun, 1993). The other shareholders cannot be ignored altogether however. Their concentration or dispersion may well affect the degree of control by the totality of the owners (Cubbin and Leech, 1983; Holl, 1975; Stigler and Friedland, 1983). Therefore, it is appropriate to consider this level of concentration as an auxiliary indicator of the degree of control. Although there is more than one way of measuring such levels of concentration, e.g. the shareholdings of the

largest  $x$  ones among them, where  $x$  is an integer, an approximation to a Herfindahl measure of concentration has been the most frequent choice in practice (Demsetz and Lehn, 1985; Hill and Snell, 1989; Leach and Leahy, 1991; Santerre and Neun, 1993). It is a measure that has been found to be theoretically attractive and one of its most important merits is that its approximations converge very rapidly to its true value (Demsetz and Lehn, 1985; Cubbin and Leech, 1983). The exact Herfindahl measure of stock concentration of  $x$  shareholders is calculated by summing the squared percentage holdings of these shareholders. The approximation is calculated over a few largest shareholdings among these  $x$  shareholders and is usually very close to the true value. This property is quite attractive in empirical studies where it is at least cumbersome and at worst impossible to take into account the shareholdings of hundreds of small investors, especially if the shares are freely traded in a stock market and (small) positions may continually change. Therefore, as our auxiliary indicator, we will use the approximated Herfindahl measure of the large shareholders other than the largest one, who - or which - as explained above is more appropriately included in our primary indicator (Santerre and Neun, 1993). These shareholdings will be based on the data published in the Istanbul Stock Exchange's Yearbook of Companies.

The location of control is linked by its definition to the nature of the most important shareholder, under normal circumstances the largest shareholder. It has been hypothesized that basic motivational differences exist

between individual (i.e. person, family or otherwise closely linked group of people) and institutional (i.e. corporations, funds etc.) largest shareholders (Holderness and Sheehan, 1988). Moreover, some works have previewed differences between the cases of a financial versus a nonfinancial institution being the largest shareholder (Chaganti and Damanpour, 1991; Thonet and Poensgen, 1979). In the light of these facts, we will classify the corporations in three groups according to whether their largest shareholder is an individual, a financial institution, or a nonfinancial institution and investigate whether performance differences exist between these groups.

Next, we want to discuss the choice of the dependent variables in the hypotheses. Before going into the details of this discussion however, one general point about these variables is noteworthy. If the value of a dependent variable in a single year is used as a measure, the random fluctuations from year to year inherent in this value may have undesired affects on the results. To reduce the effects of these random fluctuations, it is common to use an average of the dependent variable values over several years. In our empirical work, we have chosen a period of five years to this end. But the averaging of absolute numbers over a multi-year period in an inflationary environment can distort the results. The common solution to this problem is the use of ratios, when possible, that are more immune to inflation. This said, we want to explore each of the three main areas in more detail. We begin with profitability. As we have seen in the

literature review, Charreaux (Charreaux, 1991) proposed that the measures of profitability be grouped under two broad categories, those relating to the profitability of the firm in general and those relating to the profitability of the firm from the shareholders' point of view. Implicit in the former view is the idea that the firm is a legal fiction (Jensen and Meckling, 1976), i.e. it can be treated as an entity in its own right, like an individual, for whom there are indicators that are commonly accepted as signs of success. Higher profits is certainly a property that would be accepted by everybody as a sign of success for such an entity. By the aforementioned considerations however we are lead to use 'ratio' equivalents of this criterion. Return on assets (= net profit/total assets) and net profit margin (= profit after taxes/net sales) are the ratios that we have chosen for this purpose. On the other hand, the shareholder will most naturally be primarily interested in what he or she gains by buying one share of this company. This is of course measured by the rate of return of the stock defined as 
$$\left( \frac{P_1 + E \cdot P_2 + Y \cdot (P_3 - S) + D - P_0}{P_0} \right) \times 100$$
 where  $P_0$  is the price of the share at the beginning of the period,  $P_1$  is its price at the end of the period,  $E$  is the number of bonus shares obtained during the period,  $P_2$  is their price at the end of the period,  $Y$  is the number of right shares obtained during the period,  $P_3$  is their price at the end of the period and  $S$  is the amount paid for subscription in a rights share, and finally  $D$  is the dividend received for each share. When it comes to measuring the performance of the management and the effect of the ownership structure

on profitability however, such a stock-based measure has been argued to have two shortcomings. First, it incorporates expectations about the future and second, it also reflects second party opinions about the firm (Boudreaux, 1973) both of which may not reflect purely the (past) performance of management. Therefore, it is advisable to supplement the rate of return on the stock with an accounting-value based measure (Demsetz and Lehn, 1985). Such measures may have their own shortcomings due to accounting artifacts, the idea is however that the views from the two different angles of a stock-based measure and an accounting-based measure will complement one another and help us see the actual picture. Therefore, we will include both the rate of return of the stock and the return on equity among our performance variables. In the area of risk, our study focuses on the financial risk of the firms as reflected in their capital structure and in their debt-service ratio ( $= (\text{interest on long-term debts} + \text{installments due}) / (\text{net profit} + \text{depreciation})$ ) as a measure linking financial leverage to liquidity aspects. Two variables have been chosen to investigate the effects of ownership on the capital structure of the firms, the ratio of the total liabilities to the total assets and the ratio of the long-term liabilities to the total assets. This last ratio has been argued to differ especially between firms having individual and institutional largest shareholders. A last variable investigated in this area was the ratio of the total liabilities to the market value of the firm. Business risk was not considered in this research. In the area of growth, the chosen measure has

been the growth in the gross sales of the company. Influential in this choice as a measure of growth was the frequent proposition in the literature that managers who are controlled only loosely by the owners of a company will try to maximize the sales of the company.

A summary table of the performance variables has been included in Appendix A. Having thus chosen the dependent variables as well as the variables concerning the ownership structure of the firm we may proceed to describe the sample.

**B) Sample**

The sample was selected among nonfinancial companies that were listed in the Istanbul Stock Exchange. The time period from 1990 to 1994 was considered. Since a company's ownership structure must be considerably stable over the time period in order to be able to conclude that a certain ownership structure has a certain effect on firm performance, two criteria relating to the stability of ownership structure were used to build the final sample having this property. First, it was required that the firms were listed in the Istanbul Stock Exchange over the whole period. Second, it was also required that the major shareholder of a firm remained the same over the period. After application of these criteria, the final sample consisted of 65 firms in 12 industries as specified in the Istanbul Stock Exchange's Yearbook of Companies. Space considerations in tables require for a more concise way of referring to particular industries than their full names. To this end, we have used codes following the Istanbul Chamber of Industry and the Istanbul Chamber of Commerce conventions as closely as possible. In the following tables, we present the sectoral distribution of the firms and the distribution of the largest percentage stocks in the sample:

TABLE 1

## SECTORAL\* AND OWNERSHIP DISTRIBUTION OF THE SAMPLE

	Code	No. of Firms	Largest Ownership %		
			Min	Max	Avg
- Whole Sample		65	4.11	99.28	41.70
- Fabr. Metal Prod. & Machinery Eq.	38X	10	23.11	85.51	43.21
- Basic Metal Ind.	37X	4	4.11	97.73	52.84
- Chem.'s, Petroleum, Rubber & Plastic Pr.	35X	11	21.12	96.03	43.89
- Non-metallic Mineral Prod.	36X	14	25.23	97.00	41.91
- Paper and Paper Prod., Printing & Publishing	34X	3	18.46	56.17	33.21
- Wood Prod. & Furniture	33X	1	33.80	33.80	33.80
- Textile, Wearing Apparel & Leather	32X	3	30.76	34.23	31.94
- Food, Beverage & Tobacco	31X	8	25.69	45.06	34.17
- Transportation & Storage	64X	1	99.28	99.28	99.28
- Hotels & Restaurants	69X	3	31.21	63.65	42.55
- Wholesale	1XX	1	25.57	25.57	25.57
- Holdings	HLD	6	10.52	76.19	42.89

\* As defined in the Istanbul Stock Exchange Yearbook of Companies 1995.

TABLE 2

## LARGEST OWNER DISTRIBUTION OF THE SAMPLE

	No. of Firms	Largest Ownership %		
		Min	Max	Avg
- Whole Sample	65	4.11	99.28	41.70
- Personal Largest Shareholder	7	4.11	35.51	24.07
- Nonfinancial Institutional Largest Shareholder	49	18.46	99.28	42.10
- Financial Institutional Largest Shareholder	9	30.00	97.00	53.22

From the above tables, we see that the largest shareholders of some firms have ownership percentages in excess of 95%. It is known that for stocks traded in the Istanbul Stock Exchange it is usually required that no single owner possess more than 95% of the stock. The above data shows though that nevertheless some firms seem to have been exempted from this requirement.

In Appendix A, we present some characteristics of our performance variables for the sample both in an overall view and as broken down by the various industries and by the nature of the largest owner. Then in Appendix B, we include the results of one-way analyses by industry type

and by major-owner type. From the one-way analyses, we see that there are statistically significant differences between some industries and some owner-type groups with respect to several performance variables. In particular, the net profit margins of holding companies differ from those of almost all of the other industries. There is also a significant difference between the total liabilities to total assets ratios of fabricated metal products & machinery equipment producers and those of holding companies. The long-term liabilities to total liabilities ratio differs quite significantly between firms having a personal largest shareholder and a nonfinancial institutional largest shareholder. Finally, the growth rate of sales of wholesale companies is significantly higher than those of both 'chemicals, petroleum, rubber, and plastics producers' and 'textile, wearing apparel and leather producers'. Thus, we see that there may well be differences in the performance characteristics of firms in different industries or having different types of major owners. This lends additional justification for taking care of such effects during the analyses. We elaborate on the methods of analyses in the next section.

### C) Methods of Analysis

In order to test the hypotheses, regressions and one-way analyses of variance have been used. To see whether interaction effects would be affecting the conclusions two-way analyses of variance with various covariates were also run. From the significance levels of the F-ratios for the interaction effects, it was concluded that they would not cause misinterpretations in the essence of the main analyses and that they could be omitted from the rest of the research. It is a well-known fact that besides the independent variables of central interest in the research, there are other independent variables that should be incorporated into the research as statistical control variables. In the area of ownership structure and firm performance, size is such a variable. Mosen and Downs have argued that the larger the size of the corporation the more the deviation from profit-maximizing behaviour (Mosen and Downs, 1965; see also Chapter II). Furthermore, the size of the firm may determine the opportunities available to the firm (Kamerschen, 1968). In fact, size is an important determinant of the barriers-to-entry. The most commonplace methods of measuring size are the use of either total assets (Holl, 1975; Kamerschen, 1968; McEachern, 1976; Radice, 1971) or sales (Boudreaux, 1973; Elliott, 1972; Kamerschen, 1968; Kania and McKean, 1976; Mosen, Chiu and Cooley, 1968). We have chosen to conduct the analyses once with assets and once with sales to be as sure as possible from the results. Another consideration of equal importance with size is industry

type. Many factors that influence the firm characteristics and performance are industry specific. "Rather than measuring these factors independently and since [we are] more interested in adjusting for such effects than in specifying them, an overall 'industry' effect which captures such influences is more efficient. [Boudreaux, 1973; p.367]" As we have already mentioned in the previous chapter, we have adopted the classification of the Istanbul Stock Exchange as it is given in its 1995 Yearbook of Companies in determining industry type. It has been suggested that (Charneaux, 1991) it may be more appropriate to consider the constraint put by the capital market on the managers of the firm (Santerre and Neun, 1993) separately from the industry effect by a measure related to the volume of transaction. Therefore, we have chosen to rerun the analyses by also including the turnover ratio of the stock in the set of the independent variables. The inclusion of this variable has the additional advantage of providing a market-based measurement of the size of the firm. We have also conducted regression analyses for the individual industries whenever the number of firms in an industry were sufficient to do so. The results of these analyses are presented in Appendix B. It is our belief that the alternate use of assets and sales and the replication of the analyses by including the turnover ratio of the stock, as well as the cross-checking of the results by using one-way analyses of variance and by conducting separate industry analyses whenever possible will improve the reliability of our conclusions.

## V. FINDINGS

In this chapter, we will discuss the results about each dependent variable. To avoid heavy repetition though, we first want to draw attention to a few points that are common to the research for many dependent variables. When the ownership variables, the industry dummies and size were included among the independent variables for the regressions, multicollinearity was next to negligible. When the turnover ratio of the stock was also included among the independent variables, a slight multicollinearity became apparent, but its degree was unlikely to cause any serious distortion on the results. Nevertheless, from a multicollinearity point of view the former regressions are more reliable than the latter ones. Regression equations have also been tested for heteroscedasticity and deviations from normality in the residuals. While some of the regressions were problem-free in this respect, others showed violations of the regression assumptions. An inspection showed that the more serious violations were associated with those regressions, where there were outliers. Upon that observation the outliers were eliminated from the data of the respective regressions and these regressions were rerun. If there were again outliers, these were reeliminated and the process was continued until regressions with no outlying residuals were obtained. These last regressions showed considerable improvement in the fulfillment of the homoscedasticity and normality assumptions for the residuals. While it cannot be said that the residuals of

all the regressions satisfied these assumptions to the same degree, the final set of regressions can be said to be safe enough not to cause problems of interpretation. Certain normality and homoscedasticity assumptions need also be met for the proper functioning of the one-way analyses. Checks of fulfillment of these assumptions usually gave satisfactory results, the major exception being the debt-service ratio and to a certain degree the net profit margin. Therefore, we have to be more cautious with respect to the one-way ANOVA results for these dependent variables.

The fabricated metal products and machinery equipment (38X), chemicals, petroleum, rubber and plastic products (35X), nonmetallic mineral products (36X) and food, beverage and tobacco (31X) industries contained sufficient firms to allow the calculation of *t*-statistics for the regression coefficients. The results of these regressions were generally consistent with the regression results containing all the firms. We present the results of these regressions in Appendix B. In the remaining part of this chapter, we will concentrate on the all-firms regressions to evaluate the results of our research.

This said, we now want to turn to a closer examination of the results for the individual dependent variables. Only significant regressions have been tabulated in the main text as outlines. In these outlines, the abbreviations below have been used:

CON : The percentage of the shareholdings that is possessed by the largest shareholder;

HH : The Herfindahl measure of concentration of the remaining large shareholders;

PRS : A dummy variable that is 1 when the largest shareholder is a person or a group of persons;

FNA : A dummy variable that is 1 when the largest shareholder is a financial institution;

38X through 1XX : Dummy variables that are 1 when the firm is listed in the corresponding industry;

TURN : The turnover ratio of the stock;

ASSETS : The total assets of the firm

SALES : The net sales of the firm

With these abbreviations, the regressions can be written in the following general form:

$$\text{DEPENDENT VARIABLE} = \text{CONSTANT} + C1 \text{ CON} + C2 \text{ HH} + C3 \text{ PRS} + C4 \text{ FNA} + C5 \text{ 31X} + C6 \text{ 32X} + C7 \text{ 33X} + C8 \text{ 34X} + C9 \text{ 35X} + C10 \text{ 36X} + C11 \text{ 37X} + C12 \text{ 38X} + C13 \text{ 64X} + C14 \text{ 69X} + C15 \text{ 1XX} + C16 \text{ ASSETS (OR SALES)} + C17 \text{ TURN,}$$

where C1 through C17 denote the regression coefficients of the corresponding variables.

Overall means and standard deviations as well as means and standard deviations broken down by industry and major-owner type for the dependent variables have been included in Appendix A. Summary tables for the regressions and one-way analyses have been presented in Appendix B.

## I. Profitability

### 1. Return on Assets

The explanatory power of these regressions is quite low, all of the adjusted  $R^2$ 's are lower than 0.10. Also, none of the F-ratios for the regressions is significant even at the 20% level. Thus the hypothesis of the regression coefficients being collectively equal to 0 cannot be rejected at any conventional level of significance (i.e. 1%, 5% or 10%). The one-way results corroborate these findings. Whether the sample is classified by the nature of the largest owner or by the industry type the firms belong to, these analyses do not detect any significant differences between the groups, the former F-probability being 0.35 and the latter one 0.46. When we inspect the regression coefficients individually, we find quite solid evidence against the managerial hypotheses. Not only are all but one of the eight regression coefficients relating to ownership concentration insignificant at the 5% level, but the signs of all of them are also negative, contrary to the expectation of the managerial theories that higher concentration of ownership will result in higher profitability. The coefficients for the personal largest shareholder dummy variable are insignificant in all the regressions and those for the financial-institutional largest shareholder dummy variable are significant at the 5% but not at the 1% level. It seems that these latter firms underperform somewhat the other firms, but as the multiple range tests in the one-way analysis show, the

return on assets of such firms is not different from the firms in the other two groups at the 5% level of significance, even with a rather liberal test such as the Bonferroni. Coming to the industry type dummy variables, we see that of more than 40 coefficients only 3 are statistically significant at the 10% level and none at the 1% level. Industry type does not seem to be an important factor in determining the return on assets of firms, a fact verified by the multiple range tests in the one-way analysis, in which the return on assets of no two industries are different at the 5% level of significance both with the more conservative Scheffe test and with the more liberal Bonferroni test. In the regressions including the turnover ratio, its coefficient is statistically insignificant and so are the size coefficients in all the regressions, be it measured by assets or sales. As we see in Appendix A, firms differ in their return on assets, but the current results let us conclude that the cause of this variation does not lie in their differing ownership structure.

## 2. Net profit margin

We show the outline tables for the net profit margin at the end of this section. The explanatory power of the regressions is quite high; in all the regressions, the adjusted  $R^2$ 's are very near to 0.75. Furthermore, the hypothesis of the overall equality of the regression coefficients to 0 can be rejected quite confidently, the

significance of the F-ratio being 0 to four decimal places in all cases. An inspection of the regression coefficients shows that all the industry variable coefficients are significantly different from 0 -the significance of t for each of them is 0.0000- and that the regression coefficients themselves are all quite near to each other. This suggests that the net profit margins for all the industries except the reference industry (i.e. that industry for which all the industry dummies are zero) are not different in a statistically significant way, but that the net profit margin for the reference industry is strongly different. Although we already mentioned that the one-way analysis by industry type for the net profit margin should be viewed rather cautiously due to the presence of heteroscedasticity, we can be relieved by the fact that these results strongly support the expectations aroused by the regression analyses. In particular, looking at multiple range tests, we see that even the conservative Scheffe test discerns statistically significant differences at the 5% level between the reference industry and four other industries and when the Bonferroni test is used, as many as eight industries differ from the reference industry at the 5% level of significance. Between the other industries themselves however, there are no significant differences.

The results about the ownership variables lend more support to the neutrality hypotheses than to the managerial theories. The percent shareholdings of the largest shareholder is insignificant in all the regressions even at the 25% level. Furthermore, all these

coefficients are negative providing more ground to reject the managerial theories. The coefficients of the Herfindahl measure of the remaining large shareholders are also negative and significant at the 10% level throughout the regressions. Thus, if there is any relationship, more dispersed ownership results in a higher net profit margin. Coming to the variables about the nature of the largest owner, the regression and one-way results show that there are no statistically significant differences between any of these three groups at the 5% level, but at the 10% level, those firms which have a financial institution as their largest shareholder tend to have lower net profit margins. As expected, these results are parallel to those obtained for the return on assets. And again as with the return on assets, both size and turnover ratio are statistically insignificant even at quite high levels of significance. Overall, we have to conclude that the variation in the net profit margin of the firms is related weakly to their differing ownership structure, and that this relation is in the opposite direction to that predicted by the managerial theories.

TABLE 1

## OUTLINE OF THE NET PROFIT MARGIN REGRESSIONS

$$\begin{aligned}
 1. \text{ NPM} = & 99.48 - 9.10 \text{ CON} - 59.27 \text{ HH} - 2.12 \text{ PRS} - 7.08 \text{ FNA} \\
 & - 87.33 \text{ 38X} - 84.65 \text{ 37X} - 86.85 \text{ 35X} - 78.01 \text{ 36X} \\
 & - 88.87 \text{ 34X} - 83.52 \text{ 33X} - 80.87 \text{ 32X} - 82.89 \text{ 31X} \\
 & - 108.24 \text{ 64X} - 90.72 \text{ 69X} - 90.74 \text{ 1XX} \\
 & + 3.64\text{E-}7 \text{ ASSETS} \quad ( \text{SIGNIFICANCE OF F} = 0.0000 )
 \end{aligned}$$

2. NPM = 99.27 -7.86 CON - 59.44 HH - 1.95 PRS - 7.03 FNA  
 - 88.67 38X - 85.47 37X - 87.60 35X - 78.45 36X  
 - 89.50 34X - 83.86 33X - 81.43 32X - 83.29 31X  
 - 109.96 64X - 91.13 69X - 90.93 1XX  
 + 5.67E-7 SALES ( SIGNIFICANCE OF F = 0.0000 )
3. NPM = 100.45 -9.66 CON - 66.10 HH - 2.23 PRS - 7.28 FNA  
 - 87.11 38X - 84.68 37X - 86.76 35X - 77.59 36X  
 - 88.30 34X - 83.49 33X - 80.66 32X - 82.86 31X  
 - 90.76 69X - 89.35 1XX + 3.10E-7 ASSETS  
 - 0.005 TURN ( SIGNIFICANCE OF F = 0.0000 )
4. NPM = 100.13 -8.52 CON - 65.45 HH - 2.07 PRS - 7.20 FNA  
 - 88.41 38X - 85.42 37X - 87.49 35X - 78.05 36X  
 - 88.95 34X - 83.78 33X - 81.21 32X - 83.22 31X  
 - 91.11 69X - 89.70 1XX + 5.29E-7 SALES  
 - 0.004 TURN ( SIGNIFICANCE OF F = 0.0000 )

TABLE 2

## OUTLINE OF THE ONE-WAY RESULTS FOR THE NET PROFIT MARGIN

By industry type :

F-Ratio : 3.5672 ; Significance of F : 0.0009

Means (%) :

38X	37X	35X	36X	34X	33X
4.8600	7.3575	7.0091	12.9250	4.7333	7.8200
32X	31X	64X	69X	1XX	HLD
7.6800	10.7712	13.2100	1.3767	3.8400	354.1100

### 3. Rate of return of the stock

All the adjusted  $R^2$ 's for these regressions are lower than 0.10 and none of the F-ratios is significant even at a level of 20%. In fact, reviewing the significance levels for the individual coefficients, we observe that only the coefficients for the turnover ratio of the stock are statistically significant at the 10% level. The results lend strong support to the neutrality hypotheses. Many of the ownership concentration coefficients, be it the percent shareholdings of the largest shareholder or the concentration of the remaining large shareholders, have significance levels higher than 50%. Similarly, the coefficients for the personal and financial-institutional largest shareholder dummies are insignificant at any conventional level of significance. This finding is supported by the one-way analysis in which the F-probability is as high as 0.9988 and the multiple range tests do not detect any statistically significant differences at the 5% level between any two groups. But it is noteworthy that several ownership concentration coefficients have positive signs, while all the ownership concentration coefficients for the other profitability variables have negative signs. Although the very high insignificance of the results precludes any strong conclusion, it may be that it is easier for large owners to keep up the rate of return of the stock higher even though accounting-based values show lower profitability for their firms.

Turning to the other variables, we see that the hypotheses that all industries have equal rates of return of their stock cannot be rejected by the corresponding one-way analysis, nor is there any statistically significant industry coefficient at the 10% level in any of the regressions. The size coefficients, too, whether they are measured by sales or assets, are insignificant with the lowest t-test significance being 0.6074. In conclusion, we can say that the ownership structure of the firm is not a determinant of the rate of return of its stock.

#### 4. Return on equity

An outline table has been included at the end of this section. The adjusted R<sup>2</sup>'s show that the explanatory power of the regressions is generally low. As with the rest of the profitability variables, the proposition of the return on equity increasing with increasing percent shareholdings of the largest shareholder or with the increasing concentration of the other large shareholders is clearly refuted. Not only are all of the relevant coefficients insignificant at the 5% level, and 6 out of 8 even at the 10% level, but all the coefficients are also negative. Also parallel to the results for the other profitability variables, the personal largest shareholder coefficients are all highly insignificant, whereas firms with financial-institutional largest shareholders tend to

underperform other firms at a 10% significance level though not at a 5% level. Furthermore, there is no statistically significant difference between the return on equity of firms belonging to different industries as is clearly shown by the high F-probability (0.7721) of the one-way analysis and the lack of the discovery of statistically significantly different groups by the multiple range tests. This finding is also supported by the coefficients for the dummy variables in the four regressions almost all of which are statistically insignificant at the 10% level. The parallelism between the return on equity analyses and the former analysis extends also to the area of size. All of these coefficients are statistically insignificant at conventional levels, although it should be remarked that the insignificance is much more stronger when size is measured by assets. Insignificant, too, is the turnover ratio of the stock whenever it is included in the regressions. Thus, we can say that overall, the results for the return on equity are similar to the results for the other profitability variables: It is unlikely that ownership structure is considerably influencing the return on equity of the firms and it is almost sure that more concentrated ownership does not result in a higher return on equity.

TABLE 3

## OUTLINE OF THE RETURN ON EQUITY REGRESSIONS

$$\begin{aligned}
 \text{ROE} = & 31.21 - 17.17 \text{ CON} - 60.00 \text{ HH} - 5.84 \text{ PRS} \\
 & - 15.13 \text{ FNA} + 10.02 \text{ 38X} + 5.59 \text{ 37X} - 3.06 \text{ 35X} \\
 & + 6.69 \text{ 36X} - 11.32 \text{ 34X} + 13.70 \text{ 33X} + 8.35 \text{ 32X} \\
 & + 0.05 \text{ 31X} - 31.63 \text{ 64X} - 10.70 \text{ 69X} - 6.40 \text{ 1XX} \\
 & - 3.77\text{E-}7 \text{ ASSETS ( SIGNIFICANCE OF F = 0.0599 )}
 \end{aligned}$$

## II. Capital Structure :

## 1. Total Liabilities / Total Assets

Outline tables have been included at the end of this section. The explanatory power of the regressions is moderate, being somewhat higher when size is measured as assets rather than sales. This is also reflected in the F-ratios, which are significant at the 5% level if assets is a regressor, but insignificant at the 10% level if sales is used instead of assets. Similarly, we observe that the coefficients of ASSETS in the two regressions are significant at the 5% level and nearly even at the 1% level, but that in the other two regressions SALES has insignificant coefficients. Given the similarity of the regressions including assets or sales for the other dependent variables that we saw until now and will see in the next pages, this case is an exception. As to the effect of the ownership structure of firms on this dependent variable, we see that the regression

coefficients for the percent shareholdings of the largest shareholder are positive through all the regressions and so are the coefficients for the Herfindahl index of the other large shareholders. Although the latter coefficients are surely statistically insignificant, the lowest level being 0.2337, the picture for the former coefficients shows less consistency as to their significance. While this provides some slight support for the predictions of the managerial theories that more concentrated ownership will result in riskier undertakings, the significance levels viewed collectively are not enough to reject the neutrality hypothesis.

Coming to the dummy variables for the nature of the largest shareholder, we observe that all of the eight coefficients are statistically insignificant corroborating the notion that the ownership structure is not essential in determining firm performance. Nevertheless, the consistently positive coefficients for personal largest shareholders and the consistently negative coefficients for financial-institutional-largest shareholders suggest that firms having institutions and especially financial institutions as their largest shareholder try to keep risk somewhat lower by accepting relatively less debt in their capital structure. Nevertheless, the one-way analysis does not find statistically significantly different groups and reports an F-probability as high as 0.7546, thus it is important not to overstress the difference attributed to institutional owners in general and to financial institutional owners in particular.

Lastly, we want to discuss the effect of the industry type on the total liabilities to total assets ratio. We see from the regression results that many industry coefficients are statistically significant, though the exact level varies. This suggests that there may be differences between the ratios of the different industries. Indeed, a one-way analysis shows that we can reject the equality of the total liabilities to total assets ratio for all industries at the 5% level of significance. The differences are not very strong however, since multiple range tests with a 5% level of significance detect a difference only between fabricated metal products and machinery equipment producers and holding companies if the more liberal Bonferroni approach is used and no pairwise differences at all if the more conservative Scheffe test is employed instead.

TABLE 4

## OUTLINE OF THE TOTAL LIABILITIES/TOTAL ASSETS REGRESSIONS

$$\begin{aligned}
 1. \text{ TLTA} &= 16.97 + 25.26 \text{ CON} + 49.87 \text{ HH} + 7.69 \text{ PRS} \\
 &- 6.16 \text{ FNA} + 40.95 \text{ 38X} + 19.44 \text{ 37X} + 24.17 \text{ 35X} \\
 &+ 19.62 \text{ 36X} + 22.02 \text{ 34X} + 34.60 \text{ 33X} + 31.05 \text{ 32X} \\
 &+ 16.49 \text{ 31X} + 55.94 \text{ 64X} + 6.06 \text{ 69X} + 35.50 \text{ 1XX} \\
 &- 3.13\text{E-6} \text{ ASSETS} \\
 &(\text{ SIGNIFICANCE OF F} = 0.0298 )
 \end{aligned}$$

$$\begin{aligned}
2. \text{ TLTA} &= 6.23 + 37.29 \text{ CON} + 81.90 \text{ HH} + 12.22 \text{ PRS} \\
&- 5.91 \text{ FNA} + 44.34 \text{ 38X} + 22.11 \text{ 37X} + 27.99 \text{ 35X} \\
&+ 23.04 \text{ 36X} + 26.57 \text{ 34X} + 38.39 \text{ 33X} + 35.70 \text{ 32X} \\
&+ 21.56 \text{ 31X} + 8.45 \text{ 69X} + 40.53 \text{ 1XX} \\
&- 3.28\text{E-6} \text{ ASSETS} + 0.003 \text{ TURN} \\
&(\text{ SIGNIFICANCE OF F} = 0.0287)
\end{aligned}$$

TABLE 5

OUTLINE OF THE ONE-WAY ANOVA RESULTS FOR  
TOTAL LIABILITIES / TOTAL ASSETS

By industry type :

F-Ratio : 2.1513 : Significance of F : 0.0319

Means (%) :

38X	37X	35X	36X	34X	33X
65.0030	47.4975	48.0155	46.0943	47.4933	63.7500
32X	31X	64X	69X	1XX	HLD
51.6967	42.4587	58.5900	37.4233	60.8000	26.3317

2. Long-Term Liabilities / Total Liabilities

Outline tables have been included at the end of this section. The explanatory power of the regressions is relatively high in comparison with the other regressions in this research, the adjusted R<sup>2</sup>'s fluctuating around 0.30 and three out of the four regressions having statistically significant F-ratios at the 1% level, the fourth regression, too, coming near this level of

significance. However, such high significance turns out not to be due to the concentration variables, the significance level of none of which is better than 20%. Nevertheless, the consistently positive signs of these eight coefficients suggest that higher concentration tends to result in a preference in long-term rather than short-term debt implying that high owner-concentration firms are more risk-averse; in view of the high insignificance levels though, this is a weak statement at best. A much stronger case can be made for the difference in the behaviour of firms having personal largest shareholders vs. those having institutional largest shareholders. The coefficients of the personal largest shareholder dummies are consistently negative and statistically significant at the 10% level. Furthermore, the one-way analysis shows that there is a statistically significant difference between the firms having personal largest shareholders and nonfinancial institutional largest shareholders no matter whether judged by the Bonferroni or the Scheffe test. Thus, we can conclude that when the largest shareholder is a person, firms are more likely to take a riskier position by relying more on short-term debt and less on long-term debt.

The industry effect plays a somewhat more important role for the long-term liabilities to total liabilities ratio than for most of the other ratios, although one must be cautious not to overemphasize this importance. In fact, nearly one fifth of the industry coefficients are statistically significant at the 10% level but only three of them are so at the 5% level. Although a one-way

analysis rejects the equality of all the industry means, neither the Bonferroni nor the Scheffe test find significant pairwise differences at the 5% level. Nevertheless, the industry means and the regression results suggest that for firms in nonmetallic mineral products (36X), paper and paper products, printing and publishing (34X) and transportation and storage (64X) industries the long-term liabilities to total liabilities ratio is higher than for the firms in the other industries. Finally, and as in so many of the other regressions, the assets, sales and stock turnover ratio coefficients are statistically insignificant when they are included in the analyses.

TABLE 6  
 OUTLINE OF THE  
 LONG-TERM LIABILITIES / TOTAL LIABILITIES REGRESSIONS

1.  $LLTL = 15.60 + 9.01 \text{ CON} + 37.48 \text{ HH} - 10.62 \text{ PRS}$   
 $- 4.66 \text{ FNA} + 4.83 \text{ 38X} - 2.98 \text{ 37X} - 1.64 \text{ 35X}$   
 $+ 11.36 \text{ 36X} + 18.22 \text{ 34X} - 1.66 \text{ 33X} + 3.25 \text{ 32X}$   
 $- 3.36 \text{ 31X} + 27.12 \text{ 64X} + 11.76 \text{ 69X} - 11.20 \text{ 1XX}$   
 $+ 5.90\text{E-}8 \text{ ASSETS}$   
 ( SIGNIFICANCE OF F = 0.0015 )
2.  $LLTL = 16.35 + 9.97 \text{ CON} + 39.74 \text{ HH} - 9.33 \text{ PRS}$   
 $- 4.82 \text{ FNA} + 3.79 \text{ 38X} - 4.39 \text{ 37X} - 2.73 \text{ 35X}$   
 $+ 10.14 \text{ 36X} + 17.18 \text{ 34X} - 2.89 \text{ 33X} + 2.33 \text{ 32X}$   
 $- 4.44 \text{ 31X} + 26.84 \text{ 64X} + 10.12 \text{ 69X} - 12.27 \text{ 1XX}$   
 $- 7.26\text{E-}8 \text{ SALES}$   
 ( SIGNIFICANCE OF F = 0.0034 )

$$\begin{aligned}
 3. \text{ LLTL} &= 13.12 + 5.57 \text{ CON} + 54.75 \text{ HH} - 10.30 \text{ PRS} \\
 &- 3.08 \text{ FNA} + 5.72 \text{ 38X} - 0.78 \text{ 37X} - 0.26 \text{ 35X} \\
 &+ 12.12 \text{ 36X} + 18.54 \text{ 34X} - 0.07 \text{ 33X} + 3.35 \text{ 32X} \\
 &- 1.88 \text{ 31X} + 13.91 \text{ 69X} - 12.65 \text{ 1XX} \\
 &+ 5.50\text{E-}7 \text{ ASSETS} + 0.01 \text{ TURN} \\
 &(\text{ SIGNIFICANCE OF F} = 0.0049 )
 \end{aligned}$$

$$\begin{aligned}
 4. \text{ LLTL} &= 15.01 + 7.98 \text{ CON} + 55.39 \text{ HH} - 9.62 \text{ PRS} \\
 &- 3.68 \text{ FNA} + 4.12 \text{ 38X} - 3.20 \text{ 37X} - 1.89 \text{ 35X} \\
 &+ 10.05 \text{ 36X} + 16.72 \text{ 34X} - 2.61 \text{ 33X} + 1.83 \text{ 32X} \\
 &- 4.08 \text{ 31X} + 11.12 \text{ 69X} - 14.21 \text{ 1XX} \\
 &- 2.60\text{E-}9 \text{ SALES} + 0.01 \text{ TURN} \\
 &(\text{ SIGNIFICANCE OF F} = 0.0138 )
 \end{aligned}$$

TABLE 7

OUTLINE OF THE ONE-WAY ANOVA RESULTS FOR  
LONG-TERM LIABILITIES / TOTAL LIABILITIES

By industry type :

F-ratio : 3.0773 ; Significance of F : 0.0029

Means (%) :

38X	37X	35X	36X	34X	33X
24.9500	14.0925	18.5436	30.4693	38.8567	20.2500
32X	31X	64X	69X	1XX	HLD
21.0267	17.0800	52.4100	29.5567	8.3600	15.6350

By major owner type :

F-Ratio : 3.9878 ; Significance of F : 0.0235

Means (%):

	Nonfinancial	Financial
Personal	Institutional	Institutional
11.4743	25.1504	22.6133

### 3. Debt-service ratio

The explanatory power of these regression equations is quite low, no adjusted R<sup>2</sup> is higher than 0.03. The F-ratio for the equations is also highly insignificant. Noteworthy is the fact that none of the industry coefficients is significant at the 10% level with many of them being very highly insignificant. Thus, we can safely exclude the possibility of different debt-service ratios for different industries. The assets, sales and stock turnover ratio coefficients are also highly insignificant. The ownership structure variables however exhibit some statistically significant differences. Both the persistently negative signs and the significance of especially the percentage shareholdings of the largest owner coefficients let us conclude that higher concentration of stock ownership results in lower debt-service ratios for firms. Furthermore, the all negative coefficients for personal largest shareholders two of which are statistically significant at the 5% level and the other two at the 10% level imply that personal largest shareholders have a lowering effect on the debt-service ratios of the firms.

#### 4. Total Liabilities / Market Value of the Firm

The explanatory power of these regressions is generally low, none of the F-ratios having significance levels better than 65%. The largest-owner concentration coefficient is always positive but significant in only one of the four regressions. Nevertheless, these results strengthen the conclusions obtained by investigating the total liabilities to total assets ratio indicating that higher concentration firms tend to be more indebted. None of the Herfindahl measure coefficients is significant at the 10% level and moreover, they are of mixed sign. The largest-owner-type dummy coefficients are also insignificant in all the regressions. This is also in line with the corresponding one-way results, where the F-ratios are highly insignificant and multiple range-tests do not detect statistically significantly different groups at the 5% level. The industry effect is insignificant for the total liabilities to market value ratio as indicated both by the absence of significant industry dummy coefficients in the regressions and the high insignificance level of the F-ratio in the one-way analysis. Insignificant, too, are the size coefficients, but the coefficients for the turnover ratio of the stock are significant at the 5% level. Noting that these coefficients were also significant in the case of the rate of return of the stock, we can conclude that the turnover ratio of the stock is an important explanatory variable whenever the

dependent variable incorporates a market-value based assessment.

### III. Growth

Outline tables have been included at the end of this section. The adjusted  $R^2$ 's of the regressions which are slightly in excess of 0.26 point to a moderately high explanatory power. From the significance levels for the  $F$ -ratios of these regressions we see that the hypothesis of all the regression coefficients being equal to 0 can be rejected at the 5% level in all cases. Reviewing the regression coefficients of the ownership structure variables, we see that all the coefficients for the Herfindahl measure of the large shareholders other than the major shareholder are statistically significant at the 10% level (5% level for two of them) and these are the only ownership structure coefficients that are statistically significant. Their negative signs show that in line with the expectations of the managerial theories, higher concentration of ownership results in lower growth rates. This conclusion is weakened however by the fact that the coefficients for the percent shareholdings of the largest shareholder, beyond being statistically insignificant, have all positive signs. Thus, the 'neutrality' point of view cannot be totally rejected in the area of growth either. Indeed, both the statistically insignificant regression coefficients for personal and financial-institutional largest shareholders and the very

high F-probability (0.9191) for the one-way analysis by the nature of the largest owner, as well as the lack of evidence by the corresponding multiple range tests for the existence of statistically significant differences between groups give support to the neutrality theories.

The results also suggest that there may be slight differences between the growth rate of firms belonging to different industries. The one-way analysis rejects the equality of all the industry means at the 5% level (but not at the 1% level), however pairwise comparisons indicate that differences exist between only a few groups, if at all. The more liberal Bonferroni test exhibits only 1XX as different from 35X and 32X, the more conservative Scheffe test does not detect any differences. Therefore, we can conclude that any industry effect is not a strong factor in determining the growth rate of firms. Finally, the turnover ratio of the stock and size, whether measured by assets or sales, have statistically insignificant coefficients in all the regressions.

TABLE 8

## OUTLINE OF THE GROWTH RATE OF SALES REGRESSIONS

$$\begin{aligned}
 1. \text{ GROWTH} &= 67.98 + 20.01 \text{ CON} - 133.68 \text{ HH} + 11.32 \text{ PRS} \\
 &- 8.62 \text{ FNA} + 9.19 \text{ 38X} + 6.25 \text{ 37X} - 1.42 \text{ 35X} \\
 &+ 14.77 \text{ 36X} + 32.54 \text{ 34X} + 12.88 \text{ 33X} + 1.69 \text{ 32X} \\
 &+ 14.54 \text{ 31X} + 28.88 \text{ 69X} + 77.95 \text{ 1XX} \\
 &+ 2.57\text{E-6} \text{ ASSETS} \\
 &(\text{ SIGNIFICANCE OF F} = 0.0388 )
 \end{aligned}$$

$$\begin{aligned}
 2. \text{ GROWTH} &= 68.66 + 24.51 \text{ CON} - 124.97 \text{ HH} + 11.15 \text{ PRS} \\
 &- 8.46 \text{ FNA} + 7.64 \text{ 38X} + 4.90 \text{ 37X} - 3.42 \text{ 35X} \\
 &+ 12.73 \text{ 36X} + 30.64 \text{ 34X} + 9.95 \text{ 33X} - 0.11 \text{ 32X} \\
 &+ 12.18 \text{ 31X} + 26.51 \text{ 69X} + 75.70 \text{ 1XX} \\
 &+ 1.39\text{E-6 SALES}
 \end{aligned}$$

( SIGNIFICANCE OF F = 0.0402 )

$$\begin{aligned}
 3. \text{ GROWTH} &= 80.54 + 11.67 \text{ CON} - 171.01 \text{ HH} + 8.70 \text{ PRS} \\
 &- 8.87 \text{ FNA} + 10.78 \text{ 38X} + 5.12 \text{ 37X} - 2.88 \text{ 35X} \\
 &+ 13.81 \text{ 36X} + 29.23 \text{ 34X} + 8.50 \text{ 33X} - 0.45 \text{ 32X} \\
 &+ 11.42 \text{ 31X} + 26.06 \text{ 1XX} + 85.43 \text{ 1XX} \\
 &+ 1.02\text{E-6 ASSETS} - 0.04 \text{ TURN}
 \end{aligned}$$

( SIGNIFICANCE OF F = 0.0470 )

$$\begin{aligned}
 4. \text{ GROWTH} &= 81.00 + 13.77 \text{ CON} - 169.31 \text{ HH} + 9.50 \text{ PRS} \\
 &- 8.91 \text{ FNA} + 9.35 \text{ 38X} + 4.11 \text{ 37X} - 4.17 \text{ 35X} \\
 &+ 12.69 \text{ 36X} + 28.28 \text{ 34X} + 7.14 \text{ 33X} - 1.55 \text{ 32X} \\
 &+ 10.20 \text{ 31X} + 69\text{X } 24.61 + 84.37 \text{ 1XX} \\
 &- 7.20\text{E-7 SALES} - 0.04 \text{ TURN}
 \end{aligned}$$

( SIGNIFICANCE OF F = 0.0458 )

TABLE 9

OUTLINE OF THE ONE-WAY ANALYSES RESULTS  
FOR THE GROWTH RATE SALES

By industry type :

F-Ratio : 2.3312 ; Significance of F : 0.0308

Means(%) :

38X	37X	35X	36X	34X	33X
87.5414	83.7467	73.2744	83.6458	96.0300	76.5900
32X	31X	64X	69X	1XX	HLD
68.0000	83.1133	-	109.8700	145.4300	78.8333

## VI. CONCLUSION

In older times, people used to conduct their business themselves closely supervising its daily proceedings. In more modern times, another type of firm has emerged, where many stockholders pool their capital investments together and delegate authority for its daily affairs to managers. This gives rise to the question whether firms of this latter type can perform as good as firms of the former type and especially whether its shareholders will suffer some losses due to this new organization. Research on this topic has gone on in Western countries, notably in the United States and the United Kingdom, for some decades. Some articles found that the new type had an inferior performance (Bothwell, 1980; Boudreaux, 1973; Holl, 1975; Monsen, Chiu and Cooley, 1968) while others concluded that it performed as well as or better than the older type (Demsetz and Lehn, 1985; Elliott, 1972; Gedajlovic, 1993; Kamerschen, 1968; Sorensen, 1974; Thonet and Poensgen, 1979) and still others reached mixed conclusions (Kania and McKean, 1976; Leach and Leahy, 1991; Radice, 1971). Our aim in this research was to answer the question for Turkey.

It goes without saying that this research, too, like every other research had its limitations. The number of firms listed in the Istanbul Stock Exchange is relatively small when compared with those listed in the American and British exchanges. It is far more difficult to detect significant differences with a sample of 65 firms than with one of say 500 firms, especially when there are

numerous dummy variables in regressions as in the present research where a regression may include upto a total of 17 variables. The small size of the sample makes itself also feel when it is broken down by industry or major owner type. Many categories consist then of only a few firms. Furthermore the ownership knowledge obtainable from the yearbook is essentially limited to the names and percentage ownership of the large shareholders; many of the parent companies are not listed in the Istanbul Stock Exchange and their relationships, if any, are difficult to establish. Moreover, when compared with American and British companies, very-diffused-ownership firms are rare in Turkey. Therefore, we are investigating differences between less differing companies and thus it is less likely to find significant differences between firms. It is hoped that time will alleviate some of these limitations, since the companies listed in the Istanbul Stock Exchange increase throughout the years and a review of successive yearbooks shows that more and more information about individual firms has become publicly available over the years.

For now however, we have to content ourselves within the scope of these limitations. With this in mind, we conducted a research on a sample of firms that were listed in the Istanbul Stock Exchange from 1990 to 1994. The results show that the advantages and disadvantages of various ownership structures more or less balance themselves. Given the evidence, the hypothesis that ownership structure has no net effect on corporate performance cannot be rejected. Nevertheless, we see that

there is weak support in the direction of higher returns-on-assets for lower concentration firms both in the form of several significance levels between 5% and 10% and in the form of generally negative regression coefficients of the ownership concentration variables. The same also holds true for the net profit margins and for the returns on equity but for the rate of return of the stock, such weak support is found only for the fabricated metal products and machinery equipment sector. It should be noted that since our raw rate of return data was on a yearly basis, some events occurring on a shorter period may not have been captured appropriately by it. In particular, it has been suggested that larger owners are more apt to obtain some gains by loading themselves in the spring and unloading in the autumn. Returning to the results, we see that another effect suggested by them is that firms the largest shareholder of which are financial institutions have lower net-profit margins, returns-on-equity and especially returns-on-assets than both firms with personal largest shareholders and firms with nonfinancial institutional largest shareholders. This effect is particularly true of the nonmetallic mineral products sector, in which case it holds also true for the rate of return of the stock. It may be that when financial institutions which are likely to command huge amounts of money own other firms, slight variations in the profitability of the owned firm may be little felt by the financial institution. Indeed, the financial institution may be gaining much more money by investing an additional hour in its main business than by investing an additional hour to drive the owned firm's

profitability to marginally higher levels. This is especially true of the Turkish environment, where financial-institutional largest owners are essentially banks. In fact all of the financial-institutional largest owners in our sample are banks. The managers of banks will of course experience some pressure to report gains from the firms they control, but this pressure is unlikely to be as intense as that felt by fund managers in many Western countries who are judged solely by the performance of the firms in their portfolios. Over time, it can well be expected that in our country, too, funds will acquire a more dominant position in the control of firms. Our research implies that once such a development takes place, banks and funds should not be lumped together into a single category but should be considered as separate categories in future research. The results for the debt policy variables suggest that when the ownership of firms is more concentrated their capital structure shows a higher proportion of debt. This is in line with the finding that firms with more concentrated ownership have lower profitability since higher debt may be a cause of lower profitability through higher financing costs. On the other hand, since the results also show that higher concentration firms rely more heavily on long-term debt and have lower debt-service ratios than lower-concentration firms, it cannot be concluded that higher concentration firms are either more risk-taking or more risk-averse. It may be that the owners of high concentration firms want to hold on to their firms because of non-profit benefits, e.g. the satisfaction felt by the

continuing ownership of traditional family shares or the perceived advantage of owning a firm producing strategic inputs for the owning-firm etc. Since these owners do not want to dilute their ownership, they have to raise additional capital by issuing debt rather than equity. Since a high proportion of debt in the capital structure of the firm may mean a higher risk however, they may be trying to compensate for it by measures such as taking on a higher proportion of long-term debt. It is also noteworthy that major-institutional-owners have been shown to rely more on long-term debt rather than short-term debt. It may be that major-institutional owners feel a greater necessity to plan for a longer horizon and therefore prefer long-term debt. To this, we may add the fact that in an environment such as ours, it is quite difficult to contract for a long-term debt. Taking on long-term debt may be made somewhat more possible when the largest owner is an institution that can intervene using its existing relationships with banks and putting its own reputation at risk. But it may also be that such firms have easier access to cheap intermediate-term incentive credits. Finally, the results about the growth rate of sales lend weak support to the hypothesis that low concentration firms will have higher growth rates. It may well be true that, like the managerial theory's predictions, managers in low-concentration firms emphasize high growths, since many of the benefits of the managerial positions increase with the size of the firm. But even for an owner-manager possessing all the shares of a firm, commanding a large, well-known and respected firm may be a

strong motive compensating for much of the would-be difference from the low concentration firms.

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APPENDIX A

THE PERFORMANCE VARIABLES AND RELATED GENERAL STATISTICS

## THE PERFORMANCE VARIABLES

GROUP	VARIABLE	DEFINITION
PROFITABILITY	RETURN ON ASSETS	NET PROFIT/TOTAL ASSETS
	NET PROFIT MARGIN	PROFIT AFTER TAXES/ NET SALES
	RATE OF RETURN OF THE STOCK	$(P_e + E \times P_e + Y \times (P_e - S) + D - P_b) / P_b^*$
	RETURN ON EQUITY	PROFIT BEFORE TAXES/ TOTAL EQUITY
CAPITAL STRUCTURE	TOTAL LIABILITIES/ TOTAL ASSETS	TOTAL LIABILITIES/ TOTAL ASSETS
	LONG-TERM LIABILITIES/ TOTAL LIABILITIES	LONG-TERM LIABILITIES/ TOTAL LIABILITIES
	DEBT-SERVICE RATIO	**
	DEBT / MARKET VALUE	TOTAL DEBT / MARKET VALUE
	GROWTH	GROWTH RATE OF GROSS SALES

\*  $P_b$ : BEGINNING PRICE;  $P_e$ : ENDING PRICE; E: BONUS SHARES PER SHARE; Y: RIGHT SHARES PER SHARE; S: AMOUNT PAID PER RIGHT SHARE; D: DIVIDEND PER SHARE

\*\* (INTEREST ON LONG-TERM DEBT + INSTALLMENTS DUE) /  
(NET PROFIT + DEPRECIATION)

TABLE A1

## Performance Variables for the Sample

Variable	Number of Firms	Mean (%)	Standard Deviation (%)
Return on Assets	65	10.972	10.445
Net Profit Margin	64	34.885	142.976
Rate of Return of the Stock	65	178.024	105.394
Return on Equity	65	17.005	22.315
Total Liabilities/ Total Assets	65	47.756	18.693
Long-Term Liabilities/ Total Liabilities	65	23.326	12.561
Debt-Service Ratio	62	103.398	306.010
Debt/Market-Value	65	83.923	102.853
Growth Rate of Sales	47	83.455	18.954

TABLE A2

## Performance Variables by Industry Type

(Means(%) and, in parentheses, standard deviations(%))

	38X	37X	35X	36X
Return on	7.7120	11.0850	10.1455	14.9864
Assets	(10.6652)	( 9.7735)	( 8.2974)	(12.5136)
Net Profit	4.8600	7.3575	7.0091	12.9250
Margin	( 7.5583)	( 6.4085)	( 5.9303)	(10.7210)
Rate of Return	195.6400	148.6625	182.6818	145.7157
of the Stock	(137.3891)	(83.6985)	(101.4122)	(47.5323)
Return on	7.9800	21.3325	16.8755	22.8329
Equity	(45.4377)	(17.1690)	(14.1215)	(15.8163)
Total				
Liabilities/	65.0030	47.4975	48.0155	46.0943
Total Assets	(14.2814)	(13.6864)	(17.0831)	(13.0827)
Long-term				
Liabilities/	24.9500	14.0925	18.5436	30.4693
Total Liabilities	( 8.9463)	(11.4556)	( 8.1241)	(13.9033)
Debt-service	26.6260	3.6675	90.3018	21.5400
Ratio	(72.5361)	( 1.8762)	(271.1253)	(52.1592)
Debt /	115.8080	63.7575	87.8391	61.4507
Market-Value	(154.6989)	(50.8471)	(97.3067)	(60.8944)
Growth Rate	87.5414	83.7467	73.2744	83.6458
of Sales	(13.8087)	( 5.9074)	(14.6195)	(17.2471)

(continuation on the next page)

TABLE A2

(continued)

	34X	33X	32X	31X
Return on	6.0633	12.4200	9.8567	13.8563
Assets	( 0.6615)	( - )	(6.3094)	(11.8327)
Net Profit	4.7333	7.8200	7.6800	10.7712
Margin	( 1.4540)	( - )	( 3.8667)	(10.9921)
Rate of Return	111.9100	112.2600	113.1700	239.8838
of the Stock	(14.6567)	( - )	(24.2024)	(173.0676)
Return on	10.6967	33.8200	19.8300	22.5100
Equity	( 1.9242)	( - )	(10.0917)	(17.5574)
Total				
Liabilities/	47.4933	63.7500	51.6967	42.4587
Total Assets	( 3.6946)	( - )	(10.5244)	(20.1588)
Long-term				
Liabilities/	38.8567	20.2500	21.0267	17.0800
Total Liabilities	( 5.8111)	( - )	(11.2460)	( 3.2491)
Debt-service	3.8867	4.3000	9.0633	449.3175
Ratio	( 2.2001)	( - )	(11.7827)	(594.5923)
Debt/	70.6800	3.6100	76.9467	115.6713
Market-Value	(18.1377)	( - )	(43.4336)	(167.8374)
Growth Rate	96.0300	76.5900	68.0000	83.1133
of Sales	(12.8976)	( - )	(10.9460)	(14.7313)

(continuation on the next page)

TABLE A2

(continued)

	64X	69X	1XX	HLD
Return on	-8.6400	3.1000	6.2300	15.3983
Assets	( - )	( 1.7677)	( - )	(11.7187)
Net Profit	13.2100	1.3767	3.8400	354.1100
Margin	( - )	(12.9227)	( - )	(427.2866)
Rate of Return	397.2500	137.9567	163.1900	215.0167
of the Stock	( - )	(81.7623)	( - )	(62.8971)
Return on	-22.2100	8.0833	17.7400	18.2750
Equity	( - )	( 8.7417)	( - )	(12.7669)
Total				
Liabilities/	58.5900	37.4233	60.8000	26.3317
Total Assets	( - )	(37.6704)	( - )	(19.9410)
Long-term				
Liabilities/	52.4100	29.5567	8.3800	15.6350
Total Liabilities	( - )	(15.1729)	( - )	(14.2846)
Debt-service	0.1500	12.0900	-	236.4540
Ratio	( - )	(17.1019)	( - )	(521.0539)
Debt/	148.1100	108.5433	56.6400	52.1817
Market-Value	( - )	(143.2126)	( - )	(65.4637)
Growth Rate	-	109.8700	145.4300	78.8333
of Sales	( - )	( - )	( - )	(35.0927)

TABLE A3

## Performance Variables by Major Owner Type

(Means(%) without parentheses,

standard deviations(%) in parentheses)

	Personal Largest Shareholder	Nonfinancial Institutional Largest Shareholder	Financial Institutional Largest Shareholder
Return on Assets	11.1729 ( 8.1750)	11.8027 (11.3422)	6.2933 ( 4.6843)
Net Profit Margin	22.7033 (37.3846)	40.0447 (162.6196)	14.9156 (26.7375)
Rate of Return of the Stock	179.3643 (53.5168)	177.6563 (117.6197)	178.9822 (60.8784)
Return on Equity	20.6800 (11.5291)	17.4504 (24.9963)	11.7222 ( 9.5188)
Total Liabi- lities/Total Assets	45.6686 (22.7065)	48.7376 (19.0508)	44.0367 (14.3501)

(continuation on the next page)

TABLE A3  
(continued)

	Personal	Nonfinancial Institutional	Financial Institutional
	Largest	Largest	Largest
	Shareholder	Shareholder	Shareholder
Long-term			
Liabilities/			
Total	11.4743	25.1504	22.6133
Liabilities	(11.5264)	(12.6759)	( 8.3538)
Debt-service	4.2957	138.0754	3.2344
Ratio	( 2.3554)	(349.5309)	( 2.0148)
Debt /	89.5114	84.1504	78.3367
Market-Value	(80.0877)	(113.7986)	(45.3475)
Growth Rate	25.8100	93.6909	81.2450
of Sales	(23.7707)	(18.3835)	(21.6340)

APPENDIX B  
REGRESSION AND ONE-WAY RESULTS

## PROFITABILITY

## REGRESSION COEFFICIENTS

	RETURN ON ASSETS(%)	NET PROFIT MARGIN(%)	RATE OF RETURN OF THE STOCK(%)	RETURN ON EQUITY(%)
CONCENTRATION	-13.49	- 9.10	16.03	-17.17
	-12.93	- 7.85	30.22	-18.92
HERFINDAHL	-48.28	*-59.27	-258.54	-60.00
	-51.17	*-59.43	-237.89	-30.58
PERSONAL	- 5.12	- 2.12	21.36	- 5.34
	- 6.77	- 1.95	26.61	- 5.48
FINANCIAL	** - 9.56	* - 7.08	38.71	** -15.13
	** - 9.23	* - 7.03	37.23	* -11.74
F-RATIO	1.24	** 12.66	1.37	* 1.81
	1.34	** 12.84	1.32	1.38

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

(\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL)

(\*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL)

## ONEWAY ANOVAS BY INDUSTRY TYPE

	RETURN ON ASSETS(%)	NET PROFIT MARGIN(%)	RATE OF RETURN OF THE STOCK(%)	RETURN ON EQUITY(%)
F-RATIO	0.9945	**3.5672	1.2173	0.6563

(\*\* DESIGNATES SIGNIFICANCE AT THE 5 % LEVEL)

## PROFITABILITY

## REGRESSION COEFFICIENTS

## FABRICATED METAL PRODUCTS, MACHINERY EQUIPMENT SECTOR

	RETURN ON ASSETS(%)	NET PROFIT MARGIN(%)	RATE OF RETURN OF THE STOCK(%)	RETURN ON EQUITY(%)
CONCENTRATION	-29.43	- 4.77	- 812.79	- 84.09
	-15.21	4.31	*- 955.73	- 14.93
HERFINDAHL	-68.94	-32.97	*-5594.77	-459.63
	-21.60	1.64	*-6006.59	-182.54
PERSONAL	- 1.17	- 0.28	141.32	28.62
	- 3.28	- 1.95	159.30	15.95
FINANCIAL	9.30	6.31	- 187.01	38.25
	8.09	5.16	- 180.43	28.28
F-RATIO	0.35	0.19	1.38	0.44
	0.37	0.15	1.60	0.27

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

(\* \* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL)

(\*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL)

## PROFITABILITY

## REGRESSION COEFFICIENTS

## CHEMICALS, PETROLEUM, RUBBER AND PLASTIC PRODUCTS SECTOR

	RETURN ON ASSETS(%)	NET PROFIT MARGIN(%)	RATE OF RETURN OF THE STOCK(%)	RETURN ON EQUITY(%)
CONCENTRATION	-40.40	-22.12	139.02	- 70.59
	** -48.39	-25.71	247.92	** - 95.61
HERFINDAHL	-83.18	18.10	-502.82	-169.62
	-97.98	11.07	-310.40	-197.30
PERSONAL	- 4.75	1.10	6.40	- 10.38
	- 6.69	0.14	30.74	- 14.00
F-RATIO	0.98	0.86	0.24	1.00
	1.75	1.51	0.34	1.91

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

(\* \* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL)

(\*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL)

## PROFITABILITY

## REGRESSION COEFFICIENTS

## NON-METALLIC MINERAL PRODUCTS SECTOR

	RETURN ON ASSETS(%)	NET PROFIT MARGIN(%)	RATE OF RETURN OF THE STOCK(%)	RETURN ON EQUITY(%)
CONCENTRATION	- 7.13	6.81	- 60.95	9.36
	- 1.29	4.83	- 65.83	0.32
HERFINDAHL	*-110.89	-84.43	-242.38	- 98.05
	*-108.89	-84.88	-241.26	-101.18
PERSONAL	- 15.12	-15.34	71.13	- 13.52
	- 15.17	-15.90	64.34	- 13.39
FINANCIAL	** - 18.68	*-14.57	** 64.25	** - 23.46
	** - 18.83	*-14.66	** 62.69	* - 23.22
F-RATIO	2.70	1.49	* 3.06	1.41
	2.42	1.50	* 3.37	1.21

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

(\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL)

(\*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL)

## PROFITABILITY

## REGRESSION COEFFICIENTS

## FOOD, BEVERAGE AND TOBACCO SECTOR

	RETURN ON ASSETS(%)	NET PROFIT MARGIN(%)	RATE OF RETURN OF THE STOCK(%)	RETURN ON EQUITY(%)
CONCENTRATION	33.24	25.54	1746.88	61.04
	25.73	17.08	1835.13	51.53
HERFINDAHL	109.90	43.95	- 30.33	208.35
	100.86	30.06	-188.00	178.45
F-RATIO	1.54	2.84	1.62	2.43
	0.58	0.66	1.08	1.17

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

(\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL)

(\*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL)

## CAPITAL STRUCTURE

## REGRESSION COEFFICIENTS

	TOTAL	LONG-TERM	DEBT- SERVICE RATIO(%)	DEBT/ MARKET- VALUE(%)
	LIABILITIES/ TOTAL ASSETS(%)	LIABILITIES/ TOTAL LIABILITIES(%)		
CONCENTRATION	*25.26	9.01	- 9.81	99.92
	15.22	9.97	*-11.59	65.38
HERFINDAHL	49.86	37.48	-19.07	-299.53
	39.90	39.74	-21.41	-315.72
PERSONAL	7.69	** -10.62	*- 6.36	28.26
	3.38	*- 9.34	*- 7.12	34.87
FINANCIAL	- 6.16	- 4.66	- 4.95	- 8.54
	- 6.06	- 4.82	- 4.73	- 9.91
F-RATIO	**2.03	**3.04	1.04	0.51
	1.55	**2.77	1.04	0.50

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

(\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL)

(\*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL)

## ONEWAY ANOVAS BY INDUSTRY TYPE

	TOTAL	LONG-TERM	DEBT- SERVICE RATIO(%)	DEBT/ MARKET- VALUE(%)
	LIABILITIES/ TOTAL ASSETS(%)	LIABILITIES/ TOTAL LIABILITIES(%)		
F-RATIO	**2.1513	**3.0773	1.5561	0.3590

(\*\* DESIGNATES SIGNIFICANCE AT THE 5 % LEVEL)

## CAPITAL STRUCTURE

## REGRESSION COEFFICIENTS

## FABRICATED METAL PRODUCTS, MACHINERY EQUIPMENT SECTOR

	TOTAL LIABILITIES/ TOTAL ASSETS (%)	LONG-TERM LIABILITIES/ TOTAL LIABILITIES (%)	DEBT- SERVICE RATIO (%)	DEBT/ MARKET- VALUE (%)
CONCENTRATION	28.92	45.26	-127.48	-706.94
	14.83	49.28	-116.27	-859.76
HERFINDAHL	77.29	123.36	- 71.15 *	-6365.73
	40.16	121.79	- 95.87**	-6753.08
PERSONAL	2.24	- 8.59	- 36.76	258.80
	3.83	- 8.42	- 35.27	275.32
FINANCIAL	-16.09	- 2.75	- 13.67	-292.01
	-15.74	- 1.79	- 9.22	-289.58
F-RATIO	0.17	0.52	0.09	1.68
	0.23	0.54	0.09	2.08

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

(\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL)

(\*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL)

## CAPITAL STRUCTURE

## REGRESSION COEFFICIENTS

## CHEMICALS, PETROLEUM, RUBBER AND PLASTIC PRODUCTS SECTOR

	TOTAL	LONG-TERM		
	LIABILITIES/	LIABILITIES/	DEBT-	DEBT/
	TOTAL	TOTAL	SERVICE	MARKET-
	ASSETS	LIABILITIES	RATIO	VALUE
	(%)	(%)	(%)	(%)
CONCENTRATION	**120.04	- 5.84	- 600.72	** 700.96
	** 81.75	- 1.09	- 861.52	** 613.50
HERFINDAHL	**252.43	18.06	- 676.64	1146.50
	192.28	25.21	-1157.20	1025.52
PERSONAL	13.64	-10.40	- 217.69	94.62
	6.78	- 9.62	- 280.44	82.64
F-RATIO	** 12.32	0.88	0.11	2.81
	* 3.62	0.87	0.37	** 4.66

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

(\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL)

(\*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL)

## CAPITAL STRUCTURE

## REGRESSION COEFFICIENTS

## NON-METALLIC MINERAL PRODUCTS SECTOR

	TOTAL	LONG-TERM		
	LIABILITIES/	LIABILITIES/	DEBT-	DEBT/
	TOTAL	TOTAL	SERVICE	MARKET-
	ASSETS	LIABILITIES	RATIO	VALUE
	(%)	(%)	(%)	(%)
CONCENTRATION	* 22.33	10.80	87.22	- 10.44
	17.80	13.43	46.30	- 29.86
HERFINDAHL	**120.66	83.66	-380.78	145.67
	**119.27	86.10	-381.90	141.62
PERSONAL	** 40.28	-27.51	- 52.37	**186.01
	** 39.92	*-31.28	- 56.46	**179.83
FINANCIAL	6.26	- 2.96	- 63.34	* 46.87
	6.27	- 3.95	- 62.13	* 45.79
F-RATIO	** 10.56	1.21	0.97	** 7.55
	** 9.76	1.39	0.87	** 8.09

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

(\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL)

(\*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL)

## CAPITAL STRUCTURE

## REGRESSION COEFFICIENTS

## FOOD, BEVERAGE AND TOBACCO SECTOR

	TOTAL	LONG-TERM		
	LIABILITIES/	LIABILITIES/	DEBT-	DEBT/
	TOTAL	TOTAL	SERVICE	MARKET-
	ASSETS	LIABILITIES	RATIO	VALUE
	(%)	(%)	(%)	(%)
CONCENTRATION	117.76	-12.25	- 996.62	902.20
	125.55	- 9.45	-1201.80	983.32
HERFINDAHL	27.36	7.60	-2150.44	-1238.16
	- 4.55	- 3.27	-2841.02	-1307.24
F-RATIO	0.27	0.27	0.33	0.64
	0.24	0.07	0.20	0.37

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

(\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL)

(\*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL)

## GROWTH

## REGRESSION COEFFICIENTS

## GROWTH RATE OF SALES

(%)

CONCENTRATION	20.01
"	24.51
HERFINDAHL	*-133.68
	*-124.97
PERSONAL	11.32
	11.15
FINANCIAL	- 8.62
	- 8.46
F-RATIO	*2.11
	*2.09

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

(\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL)

(\*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL)

## ONEWAY ANOVA BY INDUSTRY TYPE

## GROWTH RATE OF SALES

(%)

F-RATIO \*\*2.3312

(\*\* DESIGNATES SIGNIFICANCE AT THE 5 % LEVEL)

## GROWTH

## REGRESSION COEFFICIENTS

## FABRICATED METAL PRODUCTS, MACHINERY EQUIPMENT SECTOR

## GROWTH RATE OF SALES

(%)

CONCENTRATION	61.59
	98.89
HERFINDAHL	-129.17
	152.29
PERSONAL	14.13
	- 3.09
FINANCIAL	6.81
	3.42
F-RATIO	4.42
	2.39

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

( \* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL )

( \*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL )

## GROWTH

## REGRESSION COEFFICIENTS

## CHEMICALS, PETROLEUM, RUBBER AND PLASTIC PRODUCTS SECTOR

## GROWTH RATE OF SALES

(%)

CONCENTRATION	*86.54
	*85.33
HERFINDAHL	0.31
	51.78
PERSONAL	- 0.30
	0.67
F-RATIO	1.83
	2.05

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

( \* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL)

(\*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL)

## GROWTH

## REGRESSION COEFFICIENTS

## NON-METALLIC MINERAL PRODUCTS SECTOR

## GROWTH RATE OF SALES

(%)

CONCENTRATION	16.54
	22.04
HERFINDAHL	-124.63
	-123.75
FINANCIAL	0.98
	1.04
F-RATIO	1.15
	1.15

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

(\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL)

(\*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL)

## GROWTH

## REGRESSION COEFFICIENTS

## FOOD, BEVERAGE AND TOBACCO SECTOR

## GROWTH RATE OF SALES

(%)

CONCENTRATION	69.91
	-65.70
HERFINDAHL	-215.76
	99.38
F-RATIO	0.47
	0.13

(FIRST LINES: SIZE AS ASSETS; SECOND LINES: SIZE AS SALES)

(\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 10% LEVEL)

(\*\* DESIGNATES A SIGNIFICANT COEFFICIENT AT THE 5% LEVEL)

APPENDIX C  
PERFORMANCE VARIABLE VALUES FOR THE FIRMS

COMPANY	RETURN ON ASSETS (%)	NET PROFIT MARGIN (%)	RATE OF RETURN OF THE STOCK (%)	RETURN ON EQUITY (%)
AK-AL	15.72	10.99	141.05	30.24
AKCIMENTO	14.70	10.62	127.78	23.42
AKSA	29.32	21.41	100.95	44.83
ALARKO HOLDING	20.20	996.09	297.00	23.21
ALTINYUNUS MARMARIS	1.06	- 12.78	57.32	1.02
ANADOLU CAM	8.42	7.61	114.40	16.89
ARCELIK	16.96	7.90	151.62	40.53
ASELSAN	4.85	8.65	91.26	14.48
ASLAN CIMENTO	7.54	6.16	93.50	16.68
BAGFAS	15.88	10.91	179.92	25.88
BRISA	6.94	6.68	134.34	12.69
BOLU CIMENTO	11.62	17.47	159.01	19.98
CANAKKALE CIMENTO	2.88	4.23	160.95	5.31
CIMSA	12.87	16.53	151.95	24.70
DEVA HOLDING	1.65	1.29	124.84	3.65
DOGUSAN	0.77	- 3.79	270.18	-2.96
DOKTAS	20.47	15.88	149.40	33.75
ECZACIBASI ILAC	7.72	11.69	54.35	14.12
EGE BIRA	31.37	30.76	153.17	46.63
EGE ENDUSTRI	10.31	8.25	198.92	22.49
EGE GUBRE	10.25	4.14	351.28	13.37
ENKA HOLDING	23.99		195.92	30.48

ERCIYAS BIRA	27.68	21.90	180.14	45.00
FENIS	3.61	3.11	54.78	12.46
ALUMINYUM				
GOODYEAR	11.30	5.07	140.51	25.39
GORBON	3.63	2.49	206.22	19.83
GUNEY BIRA	23.66	16.05	138.79	37.06
HEKTAS	4.93	4.07	113.31	15.07
INTEMA	6.23	3.84	163.19	17.74
IZMIR	1.74	1.80	257.94	1.60
DEMİR ÇELİK				
IZOCAM	22.64	19.06	112.40	36.76
KAV	6.42	6.41	116.53	10.55
KELEBEK	12.42	7.82	112.26	33.32
MOBİLYA				
KOC HOLDING	31.85	590.11	189.14	34.28
KONYA CIMENTO	31.16	26.51	94.20	52.81
KORDSA	10.67	8.62	97.59	19.16
KUTAHYA	12.12	8.86	111.04	20.84
PORSELEN				
MAKINA TAKIM	- 1.49	- 1.85	563.90	-26.37
MARDIN CIMENTO	37.55	38.71	145.67	54.30
MARET	4.72	2.47	96.97	5.98
MARSHALL	14.54	6.04	111.96	25.20
MARTI MARMARIS	4.18	12.54	135.75	5.37
NET HOLDING	6.83	98.56	276.81	8.79
NET TURİZM	4.06	4.37	220.80	17.86
OLMUĞSA	5.30	3.97	123.70	8.85
OTOSAN	22.13	11.08	178.80	40.90
PARSAN	-13.68	-12.87	185.45	-108.55
PEG PROFILO	5.18	3.08	128.40	16.89

PETKIM	0.59	1.42	286.58	-1.43
PINAR SU	1.82	1.39	405.01	4.09
PINAR SUT	3.76	1.74	553.09	16.04
PINAR UN	10.81	3.79	335.07	14.80
PIMAS	0.19	0.28	345.43	-7.86
SABAH	6.47	3.82	95.50	12.69
SARKUYSAN	18.52	8.64	132.53	37.52
THY	- 8.64	-13.21	397.25	-22.21
TUBORG	7.03	8.07	56.83	10.48
TURK SIEMENS	19.22	12.53	97.63	37.68
TELETAS	2.78	3.02	236.92	12.75
TRAKYA CAM	37.56	15.85	126.67	16.23
TURK DEMIRDOKUM	10.86	8.81	123.50	29.00
TURKIYE SISECAM	7.87	84.53	206.39	9.24
FABRIKALARI				
USAK SERAMIK	7.89	10.64	166.05	15.87
YASAS	11.50	5.95	190.92	18.37
YUNSA	3.18	3.43	100.87	10.09

COMPANY	TOTAL	LONG-TERM	DEBT- SERVICE RATIO (%)	DEBT/ MARKET VALUE (%)
	LIABILITIES/ TOTAL ASSETS (%)	LIABILITIES/ TOTAL LIABILITIES (%)		
AK-AL	46.86	33.59	22.65	49.62
AKCIMENTO	36.88	16.42	6.32	24.81
AKSA	34.43	7.31	907.44	23.56
ALARKO HOLDING	14.43	38.88	1168.54	3.65
ALTINYUNUS	9.55	41.99	31.80	8.08
MARMARIS				
ANADOLU CAM	53.54	54.55	2.98	89.81
ARCELIK	58.73	24.52	6.77	34.27
ASELSAN	64.54	41.79	1.31	95.52
ASLAN CIMENTO	59.16	42.43	2.36	50.41
BAGFAS	36.05	8.19	8.33	32.68
BRISA	48.14	28.09	2.90	65.70
BOLU CIMENTO	36.02	49.42	23.62	30.69
CANAKKALE	49.77	23.05	1.73	41.83
CIMENTO				
CIMSA	35.87	23.32	4.35	26.47
DEVA HOLDING	61.79	22.25	1.21	128.76
DOGUSAN	43.74	35.86	1.89	119.76
DOKTAS	39.40	30.82	4.76	19.75
ECZACIBASI	47.73	22.99	1.75	32.05
ILAC				
EGE BIRA	32.74	12.53	1170.79	7.57
EGE ENDUSTRI	54.30	25.93	2.98	69.99
EGE GUBRE	40.61	15.11	26.59	83.85

ENKA HOLDING	23.60	1.95	5.18	16.81
ERCIYAS BIRA	38.95	15.14	450.89	10.03
FENIS	65.41	5.64	1.96	65.94
ALUMINYUM				
GOODYEAR	63.82	23.18	15.10	33.62
GORBON	81.36	4.00	2.20	235.44
GUNEY BIRA	36.20	19.28	1537.68	14.81
HEKTAS	63.58	12.52	15.77	137.87
INTEMA	60.80	8.36		56.64
IZMİR	34.61	11.98	2.20	134.37
DEMİR ÇELİK				
IZOCAM	38.31	22.82	22.44	15.67
KAV	50.79	40.69	6.22	54.95
KELEBEK	63.75	20.25	4.30	3.61
MOBİLYA				
KOC HOLDING	7.34	5.69		0.97
KONYA CIMENTO	40.75	23.72		16.03
KORDSA	44.46	17.59	2.89	54.19
KUTAHYA	45.35	21.96	7.19	45.03
PORSELEN				
MAKİNA TAKİM	76.87	18.46	1.02	536.23
MARDİN CIMENTO	31.27	30.66	193.40	14.24
MARET	19.02	19.42	386.84	15.60
MARSHALL	42.21	28.87	6.87	33.99
MARTİ MARMARİS	22.44	34.03	3.29	45.02
NET HOLDING	35.89	4.44	3.99	143.18
NET TURİZM	80.28	12.65	1.18	272.53
OLMUKSA	43.50	32.35	3.59	66.57
OTOSAN	44.44	19.11	232.80	24.17
PARSAN	89.43	35.16	.84	41.11

PEG PROFILO	69.77	19.78	1.35	118.48
PETKIM	22.84	28.83	3.57	57.44
PINAR SU	65.49	16.11	1.92	402.43
PINAR SUT	80.53	22.90	1.44	365.27
PINAR UN	34.83	15.41	41.15	88.15
PIMAS	84.88	14.68	1.22	360.32
SABAH	48.19	43.53	1.85	90.52
SARKUYSAN	50.57	7.93	5.73	34.97
THY	58.59	52.41	0.15	148.11
TUBORG	31.91	15.35	3.83	21.45
TURK SIEMENS	49.58	23.19	12.68	25.63
TELETAS	50.78	11.02	1.67	156.24
TRAKYA CAM	38.43	45.07	3.47	38.44
TURK DEMIRDOKUM	61.59	30.54	4.84	46.44
TURKIYE SISECAM	14.94	20.60	3.35	19.71
FABRIKALARI				
USAK SERAMIK	54.87	33.29	8.07	111.68
YASAS	43.88	14.21	3.78	106.15
YUNSA	63.77	11.90	1.65	127.03

COMPANY	GROWTH RATE OF SALES (%)
AK-AL	75.74
AKCIMENTO	84.72
AKSA	86.00
ALARKO HOLDING	
ALTINYUNUS	
MARMARIS	
ANADOLU CAM	48.93
ARCELIK	88.02
ASELSAN	113.16
ASLAN CIMENTO	72.05
BAGFAS	59.09
BRISA	79.66
BOLU CIMENTO	96.99
CANAKKALE	103.05
CIMENTO	
CIMSA	88.96
DEVA HOLDING	71.80
DOGUSAN	62.20
DOKTAS	77.28
ECZACIBASI	60.57
ILAC	
EGE BIRA	
EGE ENDUSTRI	92.34
EGE GUBRE	60.94
ENKA HOLDING	
ERCIYAS BIRA	
FENIS	

## ALUMINYUM

GOODYEAR	81.60
GORBON	
GUNEY BIRA	64.59
HEKTAS	76.82
INTEMA	145.43
IZMIR	88.86

## DEMIR CELIK

IZOCAM	71.77
KAV"	105.15
KELEBEK	76.59

## MOBILYA

KOC HOLDING	
KONYA CIMENTO	81.83
KORDSA	60.26
KUTAHYA	97.94

## PORSELEN

MAKINA TAKIM	81.49
MARDIN CIMENTO	
MARET	80.53
MARSHALL	
MARTI MARMARIS	
NET HOLDING	116.91
NET TURIZM	109.87
OLMUKSA	86.91
OTOSAN	
PARSAN	
PEG PROFILO	82.14
PETKIM	
PINAR SU	80.31

PINAR SUT	86.91
PINAR UN	77.19
PIMAS	98.33
SABAH	
SARKUYSAN	85.10
THY	
TUBORG	109.15
TURK SIEMENS	
TELETAS	88.06
TRAKYA CAM	89.41
TURK DEMIRDOKUM	67.58
TURKIYE SISECAM	47.79
FABRIKALARI	
USAK SERAMIK	106.50
YASAS	36.46
YUNSA	