THE WILLIAM DAVIDSON INSTITUTE
AT THE UNIVERSITY OF MICHIGAN BUSINESS SCHOOL

Foreign Ownership and Profitability: Property Rights, Strategic Control and Corporate Performance in Indian Industry

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Working Paper Number 64
April 1997

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March, 1996
Revised April, 1997

The authors are listed in alphabetical order. Please address all correspondence to S. K. Majumdar (phone: [313] 763 4610; fax [313] 936 6631; e-mail - sumitkm@umich.edu). Financial support from the Center for International Business Education and the William Davidson Institute, University of Michigan, Ann Arbor, is gratefully acknowledged. Helpful comments were received from two anonymous referees and from seminar participants at the University of Michigan Business School, the Indian Institute of Management, Bangalore, the Calcutta Management Association, Calcutta, the Indira Gandhi Institute of Development Research, Bombay, the Industrial Development Bank of India, Bombay and the Industrial Credit and Investment Corporation of India, Calcutta. Useful discussions with senior officials of the Reserve Bank of India, Bombay, the Department of Economic Affairs of the Ministry of Finance, Government of India, New Delhi and the Ministry of Industry of the Government of India, New Delhi were held. The insights of Mr. J. C. Chopra, formerly a Director of Hindustan Lever Ltd., Bombay, Dr. A. S. Ganguly, formerly Chairman of Hindustan Lever Ltd. and presently a Director of Unilever PLC, London, Mr. U. C. Khanna, currently a Director of Hindustan Lever Ltd., Bombay, and Mr. V. G. Rajadhyaksha, formerly a Chairman of Hindustan Lever Ltd., Bombay, were extremely valuable, and assistance with data analysis by Bennett Fauber is gratefully acknowledged.

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Abstract

This study examines the influence of foreign ownership on the performance of firms operating in India. Foreign ownership is categorized according to the control exercisable at different levels of ownership. These categories are, in turn, determined by the institutional structure of the Indian environment which helps define define the property rights accruing at different levels of ownership. Firms' performance is measured as return on sales and return on assets. The results show that, after controlling for a variety of firm and environment-specific factors, only when property rights devolve to foreign owners, at ownership levels providing unambiguous control at 51 percent, do firms in which there is foreign ownership display relatively superior performance. Implications for managers of foreign firms contemplating investments, either de-novo or augmenting already-existing stakes, in India and for policy are also discussed.

Key words: *Foreign ownership; Multinational firms; Strategic control; Profitability; Indian industry.*

INTRODUCTION

For more than three decades, since the work by Hymer (1960), a theme in the foreign investment literature is that firms are motivated to invest abroad because they have superior exploitable capabilities relative to domestic firms (Buckley and Casson, 1976; Dunning, 1988; Porter, 1990; Vernon, 1966). The hypothesis that within a given country and industry context firms in which there is a higher share of foreign ownership will on average perform better than their domestic counterparts because the overseas firms possess capabilities which the other firms do not follows axiomatically (Caves, 1982). A stream of early literature (Dunning and Pearce, 1977; Forsyth, 1972; Globerman, 1979) has established the existence of such direct effects of foreign ownership with respect to OECD countries. Recent studies are, however, either equivocal (Willmore, 1986) or do not find any positive performance effects associated with foreign ownership (Globerman, Ries and Vertinsky, 1994).

This paper reports the results of a study examining the performance implications of foreign ownership for a large cross-section of firms in Indian industry. India is presently in the news as a location of consequence for overseas firms wishing to invest abroad.[1] India, however, has had a long history of foreign investment. At independence, in 1947, the pre-dominant share of capital in industry was foreign-owned (Kidron, 1965). Since the 1950s, India has followed a command-and-control based mixed-economy regime. This regime became autarkic in the 1960s, with negative consequences on India's ability to attract or retain foreign investment. However, since 1991, an economic policy-switch is in progress as a result of which there has been a move towards a market-based regime in which foreign capital is expected to play a significant part. While this shift to inviting foreign investment can

[1] "Anyone who invests in India is a sucker but anyone who does not invest in India is a bigger sucker." (Anonymous American commentator, c. 1963; quoted in Kidron, 1965).

be beneficial, there is an absence of systematic empirical support for the proposition that foreign-owned firms do indeed outperform domestic firms in India.[2]

A strategic issue arises with respect to the relative performance of foreign-owned versus domestic firms in India for managers. The issue is will foreign ownership lead to superior performance outcomes in all cases? Mascarenhas (1989) has argued that ownership is a summative context condition that includes not only the abilities of parties to obtain resources from product and factor markets for the purposes of organizational capability building, but also the constraints that parties face in the exploitation of such resources. Therefore, the effectiveness of foreign-owned firms in attaining superior performance can be constrained by various factors, and critical moderating variables can affect the link between foreign-owned firms' capabilities and performance.

Institutional factors constrain the attainment of superior performance outcomes (Davis and North, 1971). One such factor is the property rights regimes within which foreign firms operate. These regimes moderate the ability of foreign owned firms to enjoy superior performance. In this paper we empirically examine whether the property rights that accrue at different levels of ownership have

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[2] Since 1991 the Indian economy has been in the throes of a major economic transition, with policies reversing over three decades of an inward-looking approach to industrial development. One of the fundamental components of this economic transition is the liberalization of restrictive policies, including the opening up of many sectors of Indian industry such as oil exploration and power generation once reserved for state-owned enterprises to both foreign and Indian capital. Apart from the lowering of institutionally-based entry barriers, there is also a concerted effort to induce foreign investments across all sectors of Indian industry. These changes, however, have to be reviewed in the light of past institutional considerations that have influenced Indian policy towards foreign investments. At independence, in 1947, India was host to a large body of foreign capital, principally British, though after 1900, and particularly between 1919 and 1947, there was a considerable increase in Indian entrepreneurship (Bagchi, 1972). As a characteristic of colonial heritage, such investments were concentrated in extractive industries: for example, 85 percent of the area planted to tea was foreign-owned; another area of concentration was international trade and ancillary services. Foreign units were the largest and most influential in any industry that they participated in; for example, Kidron (1965) documents that the average foreign-owned cotton mill employed 3,300 workers, as compared to 1,800 by an Indian-owned mill. Also, as late as 1951-1952 39 percent of India's imports and between 37 and 44 percent of India's exports were handled by foreign firms (Kidron, 1965).

differing impact on performance outcomes for foreign-owned firms operating in India, controlling for a number of other factors that may affect firms' performance.[3] The theoretical issues relevant to our argument are discussed first. A discussion of the data, the variables used in the study as well as conceptual issues related to non-ownership variables that are also introduced to explain performance variations follows. The next section specifies the econometric model. A discussion of the results obtained precedes the final section which concludes the paper.

THEORETICAL FRAMEWORK

Framework: According to Furubotn and Pejovich (1974), there are three types of ownership rights. The right to use an asset (usus); the right to enjoy an income flow generated by the asset (usus fructus); and the right to change an asset's form and substance (abusus). A firm may franchise or license its skills or capabilities to a firm in another country and ensure that the intellectual property rights regimes in place, such as patent, copyright and trademark laws, protect the seller or licenser from egregious losses of income. With respect to the investment option, where large capital outlays are concerned, a different type of property right is involved. That property right is the right of sale or disposal of assets, which is a sine-qua-non of ownership (Demsetz, 1988). This particular right is the ultimate expression of an investor's ability to exercise strategic control. As Teece (1981) has discussed, if such a property right is precluded then it is equally difficult for an investing firm to internalize the benefits and returns accruing to its superior capability sets. Given a choice, firms will opt to retain full control over foreign operations and the right to change asset forms and substances, so as to protect the

[3] Gedajlovic (1993) states that the nature of ownership itself, whether to license, franchise, enter into an equity joint venture or fully own a foreign subsidiary, can be a strategic choice variable since the choice of an ownership structure helps firms mitigate hazards that can arise in various exchange or contractual relationships. In this paper we do not look at ownership choice issues. Rather, given particular ownership structures within the Indian context, we look at how variations in such structures, conditioned by institutional factors, influence the strategic performance of firms.

value of the assets as well as appropriate value through the enjoyment of the right to enjoy income flows generated by the assets.

Property Rights and Strategic Control: In India control over foreign investments is operationalized via the percentage of equity that foreigners can hold, and there are relatively few fully, 100 percent, foreign owned firms in India. Following International Monetary Fund guidelines, the Reserve Bank of India classifies equity ownership of 25 percent or more as enabling control. Below that level of ownership, foreign firms are assumed to be relatively passive investors. The passage of special resolutions under the Indian Companies Act of 1956, as a result of which far-reaching changes in a firm's activities can be brought about, requires that 75 percent of the shareholders vote in favor. Only at a 25 percent level of shareholding do foreign firms have the ability to block members' special resolutions which are necessary to make significant strategic changes. At an ownership level less than 25 percent foreign investors have no means of strategic control through their ability to block special resolutions which may be detrimental to their interests. All strategic control is vested in the hands of the other shareholders. Therefore, at an ownership level of less than 25 percent asset protection for any firm is difficult.

The extent of diffusion of ownership of the balance 75 percent shareholding is a factor that can impact whether an owner with less than 25 percent foreign stake has the ability to exert positive control. As Demsetz and Lehn (1985) have argued, the greater the degree of concentration of ownership the greater the degree of costs and benefits that are borne by any one owner. With dispersed ownership, a free rider problem is created and a number of owners can shirk their monitoring role since the benefits and costs of ownership are shared by a multitude of owners. With a less than 25 percent foreign shareholding, if the balance of the shares are dispersed there is a possibility that domestic

shareholders are not able to act collectively (Berle and Means, 1932). The possibility remains that where foreign ownership is less than 25 percent superior performance outcomes may be noted because de-facto control over property rights can be exercised by the foreign shareholder if domestic ownership is dispersed. Whether or not this is the case has to be empirically resolved, and we take the contingency into account while designing our empirical procedures.

Foreign firms were allowed a maximum shareholding of 40 percent in their Indian subsidiaries till 1991. An ownership stake of between 25 percent and 40 percent has implied that foreign firms could have exercised operational control. The operational control is expressed via the ability to bar the passage of special resolutions. The passage of ordinary resolution still requires that 51 percent of the shareholders vote in favor. This is not feasible when the maximum ownership stake allowed to foreign firms is 40 percent. While full control is not available, performance differences are assumed between firms with between 25 percent and 40 percent foreign shareholding and firms with less than 25 percent foreign shareholding, since firms with more than 25 percent shareholding have partial control over their property rights that is not available when shareholding is less than 25 percent.

A number of foreign firms have been allowed to have a greater than 40 percent ownership stake in Indian firms, though they have not been permitted majority voting rights control that goes with a 51 percent ownership stake. These firms have come under monitoring by both the Ministry of Finance and the Reserve Bank of India. An over 40 percent stake has been assumed to imply not only operational control, but also control over strategic decision-making and property rights. The Indian government has operated on the principle of separation of ownership and control, for example as articulated by Berle and Means (1932), that it is difficult for a large number of small shareholders to undertake concerted collective action. Therefore, effective control can be wielded by a single large

shareholder which, though owning upwards of 40 percent of the shares, does not necessarily possess full-majority voting rights that accrue with a 51 percent shareholding. Whether this is the case, however, needs to be empirically investigated.

Majority ownership, where foreign owners can have a 51 percent shareholding in Indian firms, is a comparatively recent phenomenon. It is a policy change implemented after the 1991 reforms. The reforms give foreign investors unambiguous control over asset and income partitioning. They also gain the ability to block both ordinary and special resolutions which may be sponsored by other shareholders and which could be detrimental to foreign firms' interests. A 51 percent ownership holding gives foreign firms the ability to implement ordinary resolutions without the need for recourse to the votes of other sympathetic supporters. In summary, three categories of foreign ownership can be defined: first, investment below 25 percent, investment between 25 and 40 percent (51 percent - post 1991), and investment of 40 percent (51 percent - post 1991) or above. Each of these categories can have varying influences on firms' performance. As property rights devolve unequivocally only at 51 percent, we expect that firms with foreign ownership of 51 percent or more will display superior performance.

DATA AND VARIABLES

Data: To evaluate the effect of foreign ownership on the economic performance of firms, and to assess whether foreign firms do outperform domestic firms, this study uses firm-level data for over 1,000 Indian firms listed on the Bombay Stock Exchange. In addition to ownership data as to the proportion of shares held by foreign investors, directors, the general public and financial institutions, which are principally government-owned, the data include information extracted from the profit and loss account and the balance sheet of individual firms, data with respect to asset utilization, exports and imports, and various financial performance ratios. The data were collected from multiple sources. The

Center for the Monitoring of the Indian Economy (CMIE) provided initial data. Thereafter, details on ownership and aspects of firm behavior and performance were collected from the Bombay Stock Exchange and the office of the Registrar of Companies in the Ministry of Law, Justice and Company Affairs of the Government of India. The principal limiting factor was the availability of data on ownership, which were not readily available for all firms. In conjunction with the guidance provided to us by officials of the Department of Statistical Analysis and Computer Services of the Reserve Bank of India, we were able to collect ownership data for over 1,000 firms.

This study differs from much of the earlier work in this area in so far as most analyses comparing the relative impact of foreign and domestic ownership base their findings on analyses of industry-level or plant-level data to make the case that a foreign firm may turn out to be a better performer. The problem with such analyses is that they lead to an ecological fallacy, whereby either plant-level data collected from census records or industry-level data are used to draw conclusions about the performance of individual firms. Ownership is a firm-level concept, and not an industry-level or a plant-level concept. Therefore, the correct unit of analysis is the firm. There is, also, an additional problem with either plant-level or industry-level analysis in that neither unit of analysis permits the control for a number of firm-specific factors which have to be taken into account in explanations of performance.

The approach used in this paper follows work by Gedajlovic (1993) and Mascarenhas (1989) in focusing at the relevant unit of analysis - the performance of individual firms. Moreover, this is, perhaps, one of the largest cross-sectional data sets on firms collected to study the impact of foreign ownership on firm performance for any developing nation, and especially for India where the last similar comprehensive study of Indian industry was conducted by Hazari (1966), who investigated the

ownership structure of Indian industry. The purpose of that study was limited as it was more concerned with identifying broad ownership patterns, than with assessing the influence of ownership, per-se, on firm performance.

The data collected are cross-sectional and not time-series because of difficulties associated with obtaining ownership patterns, and we cannot construct a cross-sectional time-series panel. Ideally, data collected on changing patterns of ownership and firm performance over a long time period are likely to yield richer findings. The large cross-section of firms in the data-set allows us to control for firm-level, industry wide, and institutional effects, given that a lack of controls has been the lacuna of past studies (Athukorala, Jayasuriya and Oczkowski, 1995). The variables used in the study are listed in Table 1.

Measures of Performance: Firms' performance is measured for the purposes of this study using two different variables: return on assets and return on sales, in common with similar work studying the impact of ownership on firms' performance (Boardman and Vining, 1989; Gedajlovic, 1993). The former measure looks at the ability of firms to generate returns on the investment base of the business, while the latter measure is more market oriented. Because of differences in how depreciation may be computed, and a number of other reasons, accounting rates of return have been assumed to be non-equivalent to economic rates of return (Fisher and McGowan, 1983).

Nevertheless, these accounting-data based measures are used for all our observations; hence, there is consistency in measurement within the sample. Previous research (Kay and Mayer, 1986) has established that accounting ratios have significant correlation with economic rates of return, and there are a number of studies in the industrial organization field (Bain, 1951; Cowling

and Waterson, 1976) and in the strategic management field (Capon, Farley and Hoenig, 1990; Lenz, 1981; Woo, Willard and Daellenbach, 1992) which have employed these accounting-ratios based measures of performance.

Principal Independent Variables: There are a number of ways to capture ownership variations. In this paper, we explicitly consider the impact of property rights regimes on different levels of foreign ownership. Therefore, rather than capture ownership variations through looking at categories such as domestic versus foreign versus state ownership, or joint ventures versus wholly-owned subsidiaries, we only look at ownership variations that have a legal basis in the Indian Companies Act of 1956.

The existence of institutional constraints imposed by the legal regulations of the Indian government implies that the impact of foreign ownership has to be assessed at three levels: first, for firms with upto 25 percent foreign shareholding; second, for those firms with foreign shareholding greater than 25 percent, but less than 40 percent prior to 1991, and 51 percent afterwards; and, third, for companies in which foreign shareholding was greater than 40 percent prior to 1991, and larger than 51 percent after 1991. The data that we have acquired on shareholding reports the percent of shares in each firm that are owned by foreign firms, with information allowing us to identify firms with different levels of foreign shareholding, and categorize these into firms with less than 25 percent foreign shareholding, firms with between 25 percent and 40 percent (51 percent after 1991) shareholding, and firms with more than 40 percent (51 percent after 1991) foreign shareholding, to thereafter assess the differential impact of the different categories of foreign ownership on performance.[4]

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[4] However, we do have a lacuna in that we cannot identify home-country sources of ownership, which Gedajlovic (1993) and Globerman, Ries and Vertinsky (1994) have been able to do. Such a

Other Ownership Imperatives: Mascarenhas (1989) points out the necessity to include more than two ownership categories at a time so that confounding effects are reduced, and there is greater variation between the firms studied. Following Demsetz and Lehn (1985), we consider that the concentration or dispersal of domestic equity as a key contingency that can enable foreign investors to exert control in situations where they hold less than 51 percent of the shares. The presence of concentrated domestic owners can constrain the foreign investors from exercising the control that they would be otherwise be able to. From the data base we can identify domestic ownership concentration or dispersal. The data base provides information on whether the top fifty owners among the public-at-large or the directors or the government-owned financial institutions own more than 25 percent of the shares in any firm. We create a dummy variable which is coded 1 for each such instance as a measure of the concentration of domestic ownership, and 0 otherwise.[5]

Control Variables: A lacuna of much of the earlier literature referred to is that the analyses have been based on a simple, often non-parametric, comparison of the performance of a domestic sub-sample versus a foreign sub-sample without controlling for other relevant factors. However, other than foreign ownership levels, several control factors need to be introduced. Foreign controlled firms may be attracted to industries which have above average profitability

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qualitative aspect of foreign ownership can be important. For example, Kojima (1978) has argued that Japanese firms are, a-priori, better performers than firms from U.S.A. or Europe and in third-country locations will outperform American-owned or European-owned firms.

[5] Some of the other categories that are possible are joint ventures, concentrated or dispersed Indian equity, concentrated or dispersed foreign equity and state-owned enterprises. We are able to separate out the impact of various degrees of foreign ownership, and can also account for whether the domestic ownership component is concentrated or not, as we discuss below. Unfortunately, data are not available as to the concentration or dispersal of foreign ownership or to take into account other aspects of ownership such as whether a firm is state-owned. Equally-owned joint ventures fall in a special category. The foreign component of a joint venture will be classified as a firm with less than 51 percent foreign equity, while the domestic component of ownership will be classified as concentrated following the procedures we describe.

levels, and foreign ownership may be clustered in industries which enjoy above-average performance relative to other industries. To control for possible biases in our estimates, we introduce a number of variables which can positively or negatively impact firms in their ability to attain above-average levels of performance. Details of how the variables are constructed are given in Table 1.

In the strategy literature, there is no standard model which explains differences in firm-level performance. Hansen and Wernerfelt (1989) classify performance differences as arising from either economic or organizational sources. Capon, Farley and Hoenig (1991) consider environment, strategy and organization reasons as giving rise to financial performance differences. Given ownership structures and industry contexts, firms make choices as to the various strategies adopted and a study such as ours which explains firm-level performance across a number of industries has to take into account both industry-related and firm-level characteristics. In analyzing interindustry differences in performance, Caves and Barton (1990) develop a comprehensive framework that we adopt for our analysis. This framework has been applied to explain firm-level performance differences across a wide range of industries in six countries (Caves, 1992). Therefore, the framework has considerable validity in helping to account for firm-level performance differences across industries.

Specifically, the major family of hypotheses that help explain firm-level performance variations deal with the effects of (a) competitive conditions within an industry, (b) organizational factors, (c) heterogeneity, (d) dynamic disturbances, and (e) government and regulatory policies. Given data constraints and industrial conditions peculiar to India, we introduce a number of variables consistent with each of these five categories which also help explain firms' performance.

Competitive Conditions: Two variables pick up competitive conditions. Exposure to foreign trade is assumed to exert pressures on firms to attain superior performance, since competitive intensity rises as a result of which x-inefficiencies in firms are reduced, and export-oriented strategies are more conducive to micro-economic performance (Leibenstein, 1976). Firms which have relatively greater levels of export sales face competitive pressures from firms in overseas markets, they have to be efficient and also produce high-quality output so as to be effective competitors. Additionally, the experiences gained in operating overseas also lead to a greater range of experiences and skills acquisition. These experiences can be leveraged to benefit the totality of a firm's business activities, leading to superior performance as a whole. India has traditionally been an export-pessimistic country (Mohan and Aggarwal, 1990), and Indian firms' share of global foreign trade has been minuscule. Firms which have been relatively high exports are also likely to be more progressive and risk-oriented, with relatively better performance patterns likely to be noted. EXPORT SALES is introduced as a regressor in the model to account for how external competition affects firms' performance.

Imports of finished products into a domestic industry also reduce x-inefficiencies in firms in that industry as a result of the greater competitive pressures facing the firms (Balassà, 1989). However, no theory predicts what impact the level of imports undertaken by firms has impact on performance. On one hand, the level of firm-level imports enables higher quality finished goods to be produced and higher prices to be realized as firms can differentiate their products. Higher price realizations can positively impact firms' profitability. On the other, institutional factors underlying Indian policies have led to the emergence of a rent-seeking class of firms which have been able to pre-empted stocks of high quality inputs since finite import quotas have hitherto been the norm

(Marathe, 1989). While we include IMPORTS as a regressor, import trade-control policies can bias the performance of firms in either direction; we leave the sign of the coefficient to be empirically determined.

Organizational Factors: A number of organizational factors can influence performance. Theoretically, the size of a firm can affect a firm's performance in many ways. Key features of a large firm are its diverse capabilities, the ability to exploit economies of scale and the formalization of procedures. These characteristics, by making the implementation of operations more effective (Penrose, 1959), can allow larger firms not only to generate larger returns on assets and sales, but also to capture more value as a proportion of the value of production than smaller firms. Alternatively, larger firms could be less efficient because of the loss of control by top managers over strategic and operational activities within the firm (Williamson, 1967).

Increased bureaucratization and extensive hierarchies also reduce the incentives for managers to be efficient as the rents from superior performance tend to dissipate among a larger number of personnel in the firm. Smaller firms, while unable to enjoy the advantages of economies of scale, are less hierarchical and bureaucratic and can be more flexible in adapting to situations where rapid-decision making can allow firms to obtain larger than average profits (Carlsson, 1989). Size can have both positive and negative consequences on performance, and with respect to the Indian firms studied we do not prognosticate about the sign of the SIZE coefficient, but leave it to be determined from the data.

There is another reason why SIZE is an important control variable. While our data is cross-sectionally extensive, we do not have the ability to measure a key competitive condition - a firm's market-power or the level of concentration in the industries that the firms operate in. This is

a major limitation of the data, and we cannot include controls for market-structure factors which are important drivers of economic performance. The size of firms reflects their ability to attain scale economies as well as market power (Boardman and Vining, 1989), and SIZE proxies for market-power, albeit imperfectly. SIZE is, therefore, a competitive condition variable as well as an organizational variable.

We introduce AGE as a control variable, since how old firms are is a key determinant of performance. We do not prognosticate on whether AGE is positively or negatively related to performance in the Indian context, and leave the issue to be empirically determined. Extant theory is also equivocal on the issue. The industrial organization literature suggests that older firms are more experienced, have enjoyed the benefits of learning, and can enjoy superior performance compared to newcomers (Gold, 1981). On the other hand, economic (Marshall, 1920) and sociological writing (Hannan and Freeman, 1989) suggest that older firms are prone to inertia that goes along with age; thus, they are unlikely to be flexible enough to make rapid adjustments in the contemporary environment. Therefore, relative performance is likely to suffer. We cannot, however, control for age of the foreign investment since such data are unavailable.

The relative diversification of business activities by firms impacts on performance (Caves and Barton, 1990; Ramanujam and Varadarajan, 1989). Related diversification is one way of exploiting firms' excess resource capacities (Penrose, 1959) and may lead to better performance (Rumelt, 1974). Unrelated diversification can lead to lower than average performance because it leads to a dissipation of resources into areas which demand more than necessary attention (Bettis and Prahalad, 1986). An alternative view is that expansion into a broad range of activities leads to the acquisition of novel capabilities, the benefits of which can be leveraged back into the original

line of business activity. Therefore, unrelated diversification may turn out to be beneficial for firms. However, the context is important. In India, the industrial policy regimes have led firms to undertake a broad range of unrelated diversification efforts (Marathe, 1989). The effects of such business diversity have to be controlled for, and their impact assessed. Therefore, DIVERSITY is introduced as a regressor.

A variable GROUP is also introduced into the regression. Within India a number of business groupings exist, because the origins of Indian enterprise have been based on great trading families who subsequently financed forays into industry (Ray, 1979). A number of these groups own firms in which there is also a large foreign-ownership component. Additionally, a number of firms, which are foreign in origin, now each control a number of companies and form a group. Belonging to a group is expected to lead to capability-spillovers among the firms comprising the group, with a positive impact on the performance of individual firms, as a result of the existence of scope economies in many operational areas (Teece, 1980). The use of SIZE, AGE, DIVERSIFICATION and GROUP as control variables is consistent with the approach of Caves and Barton (1990).

Heterogeneity: Strategic choices made affect the performance of firms within an industry and lead to the creation of heterogeneity within industries. ADVERTISING, MARKETING and DISTRIBUTION are three variables which help to control for some aspects of firm-level behavior which can affect firm performance. A large literature has found advertising and firm-level performance to be positively related (Comanor and Wilson, 1974), and Caves and Barton (1990) observe that advertising can lead to product differentiation, while marketing expenditures lead to more information about firms' products being available. Distribution expenditures widen the

physical range of coverage and the variable proxies for geographic market heterogeneity (Caves and Barton, 1990). The amount of expenditures incurred on advertizing, marketing and distribution activities as a ratio of sales can potentially enhance the per-unit revenue realization and lead to greater profitability.

Two further heterogeneity variables are added. One is capital intensity which controls for variations in firms' input structures. Differences in input structure between firms can be associated with a number of factors such as capital market influences, managerial decisions as to what is thought to be optimally feasible level of a particular input or supply conditions in factor markets (Caves and Barton, 1990). Evidence also points to the fact that firms with greater levels of foreign ownership are relatively more capital intensive than domestic firms (Agarwal, 1979). We introduce NET FIXED ASSETS as a regressor to control for capital intensity in firms' operations. In some industries the ability to turn over working capital rapidly can influence performance positively, since greater utilization of liquid resources is attained. QUICK RATIO captures the relative ability of firms to generate cash and other liquid assets as a proportion of their outstanding current liabilities. A higher value of this variable reflects both industry conditions as well as latent firm-level cash management capabilities which are unobservable.

Dynamic Disturbances: General environmental factors often have a strong impact on performance (Capon, Farley and Hoenig, 1991). INVENTORY and SALES GROWTH are two variables capturing general business conditions (Caves, 1992), although INVENTORY may also capture aspects of firm-level competencies since some firms within a given industry may turn out to be better managers of working capital than others and some industries can have higher inventory holding patterns relative to others. Similarly, in some industries growth in sales may be

higher or lower compared to others. Such factors are reflected in the INVENTORY and SALES GROWTH variables for the individual firms.

Additionally, the economic environment may be such that during one period inventory holdings may be higher than in others because of declining consumer off-takes from the markets, and sales growth trends may also be negative. These business-cycle influences affect all firms. The two variables help to control for industry-level as well as business-cycle factors. Controlling for the latter is important in the Indian context, since the Indian economy has gone through a recession in the years 1992 and 1993, two years for which we have several observations.

Government and Regulatory Policies: Two variables control for the effects on government policies on performance. First, in India high leverage or debt-equity ratios are the norm, since the state has stepped in as a provider of long-term capital for large industrial projects because equity markets were under-developed and the level of personal savings inadequate (Jalan, 1991). Thus, leverage is not just a strategic variable but a necessary prerequisite for firms to operate in India. In theory, principal-agent reasoning suggests that the greater the level of debt, the greater the amount of lender monitoring; therefore, firms' performance will be better (Jensen and Meckling, 1976). In India, such principal-agent concepts have been reversed because, in spite of the presence of a large quantity of debt, the lack of monitoring by government-owned lenders have permitted industrialists to earn large rents on low personal investments (Jalan, 1991) and there have been no incentives to attain superior performance. Thus, DEBT EQUITY RATIO is expected to be negatively related to performance.

In India indirect taxes consist of a major source of revenue for government. Firms act as tax collectors by recovering excise duties from the final customers and passing them on to the

government authorities (Jalan, 1991). The role of a firm as a tax collector can mute incentives to maximize profits because the firm operates more as an indirect revenue-raiser for the government rather than as a business enterprise. To capture this institutional phenomenon, EXCISE is introduced as a control variable and the coefficient is expected to be negative.

We also introduce industry-specific controls. The Reserve Bank of India collects industrial data and releases them in the aggregate by industry categories. We use this classification to sort the firms into specific industry categories. These industry categories are chemicals, engineering, finance, foods, mining, textiles, agriculture and others.

MODEL SPECIFICATION

Rationale for Estimating a Spline Function: To test the impact of foreign ownership on performance three testing strategies are feasible. First, foreign ownership can be introduced as a (0,1) dummy variable (FOREIGN (DUMMY)). Some firms may have no foreign ownership; thus the presence of foreign ownership in other firms and whether it makes a difference can be picked up. The second approach is to introduce foreign ownership as a continuous variable ranging between 0 and 100 percent (FOREIGN (CONTINUOUS)). Under this approach we can evaluate if there is a general relationship between foreign ownership and performance.

In India, as discussed earlier, there are three critical levels of foreign shareholding; less than 25 percent; more than 25 percent but less than 40 percent (prior to 1991) or 51 percent (after 1991); and, over 40 percent (prior to 1991) or 51 percent (after 1991). These ownership levels allow foreign shareholders different levels of control over the firm. A general problem arises as a result. There cannot be a linear function that best represents the data; rather the foreign ownership and performance relationship is likely to be non-linear. While linearity is attractive

theoretically, given institutional considerations underlying the foreign ownership and performance nexus it is empirically untenable. Therefore, a third testing strategy has to be adopted.

One way to determine the influence of these different categories or levels of foreign ownership is to estimate the independent impact of the various categories of foreign ownership through a series of separate estimations, or through a series of dummy variables, which is tantamount to estimating separate regressions for each ownership category (Maddala, 1977). These approaches, however, rule out any continuous movement from one ownership category to another (Greene, 1990), and also do not use all the information contained in the data for model estimation (Boyce, 1987). An alternative approach builds a relationship between the various categories through a series of linear segments, but forces these linear segments to meet at the end-points of each category of ownership. This approach is captured by a class of models called spline or kinked-regression models (Johnston, 1984; Poirier, 1976).

Originally, spline regression were used for time-series regression models, where the dependent variable could have time-varying relationships with the independent variables (Boyce, 1987; Garber and Poirier, 1974). A spline model is equally appropriate for cross sectional analysis, especially when the key independent variable is continuous with very definite breaks or kinks, and there have been a number of uses of spline-regression models in the literature with cross-sectional data to estimate important relationships (Geroski, 1981; Schwalbach, 1991).

The Form of the Spline Function: The general function to be estimated is:

$$PERFORMANCE = \alpha^0 + \beta^0\ FOREIGN \qquad \text{if } FOREIGN < 25 \qquad (1),$$

$$PERFORMANCE = \alpha^1 + \beta^1\ FOREIGN \qquad \text{if } FOREIGN \geq 25 \text{ and } \leq 40\ (51) \qquad (2),$$

$$PERFORMANCE = \alpha^2 + \beta^2\ FOREIGN \qquad \text{if } FOREIGN \geq 40\ (51) \qquad (3),$$

where *FOREIGN* is the level of foreign shareholding or ownership.

The values for the various categories of ownership or the threshold levels of ownership, are called knots. The knots are determined based on the discussion, with natural kinks in the data being provided by the government regulations. As a result, we have 2 knots, at 25 percent and at 40 percent foreign shareholding levels for the years preceding 1991, and 51 percent after 1991.

The function can be specified using dummy variables:

$d_1 = 1$ if $FOREIGN > t_1$ (4),

$d_2 = 1$ if $FOREIGN > t_2$ (5),

where $t_1 = 25$ and $t_2 = 40$ (or 51 in the post 1991 period).

Combining all three equations yields:

$$PERFORMANCE = \beta_1 + \beta_2 FOREIGN + \gamma_1 d_1 + \delta_1 d_1 FOREIGN + \gamma_2 d_2 + \delta_2 d_2 FOREIGN + \varepsilon \quad (6).$$

To ensure continuity, the segments should be joined at the knots, or

$$\beta_1 + \beta_2 t_1 = (\beta_1 + \gamma_1) + (\beta_2 + \gamma_1) t_1 \quad (7),$$

and

$$(\beta_1 + \gamma_1) + (\beta_2 + \gamma_1) t_2 = (\beta_1 + \gamma_1 + \gamma_2) + (\beta_2 + \delta_1 + \delta_2) t_2 \quad (8).$$

These represent linear restrictions on the coefficients. Collecting terms in (7) and (8), we obtain:

$$\gamma_1 = -\delta_1 t_1 \quad (9)$$

and $\gamma_2 = -\delta_2 t_2$. (10).

Inserting (9) and (10) in (6), we obtain:

$$PERFORMANCE = \beta_1 + \beta_2 FOREIGN + \gamma_1 d_1 (FOREIGN - t_1) + \gamma_2 d_2 (FOREIGN - t_2) \quad (11).$$

Introducing these constraints adjust the intercepts so that slopes for the various categories join at the knots.

Other Procedures: For each of the regression models estimated studentized residuals are identified. Studentized residuals help identify outliers that do not appear to be consistent with the rest of the data, and Belsley, Kuh and Welsch (1980) point out these studentized residuals have an approximate t-distribution with *n-p-1* degrees of freedom. This information allows us to determine the influence of any one studentized residual using a t-table. The regression model is then re-estimated by omitting observations that have a large studentized residual, with an absolute value of 1.96 or greater. The re-estimated regressions do not alter the results in any significant way, but provide us with more stable coefficient estimates. Analysis of the residuals also reveal heteroscedasticity. To correct for heteroscedasticity which lead estimates to be inefficient, the maximum likelihood correction process as recommended by Judge, Hill, Griffiths, Lutkepohl and Lee (1988) is then used to estimate the final model.

RESULTS AND IMPLICATIONS

Findings: The estimation results are reported in Tables 2, 3 and 4. There are no collinearity problems. We carry out two sets of estimations for the two different dependent variables. We carry out separate estimations for observations belonging to the years 1988 to 1991, and for observations belonging to 1992 and later years. Because the property rights regime shift took place in India in July 1991, unambiguous control was available to foreign firms only after that period. We do pre and post regime shift model estimations.

In Table 2 we report the non-spline regression results for both the dependent variables - return on sales and return on assets - for the separate periods of time and the full sample, using FOREIGN (DUMMY) and FOREIGN (CONTINUOUS) as the primary explanatory variables. The coefficients for the control variables are not reported because of space constraints. Table 2

shows that FOREIGN (DUMMY) and FOREIGN (CONTINUOUS) are not positively and significantly related to either measure of performance in any of the estimations. These results show that accounting for the mere presence of foreign ownership may not indicate that domestic firms will perform better. In fact, the most recent study (Globerman, Ries and Vertinsky, 1994) does not reach a positive conclusion, and one reason maybe that they use a dummy variable to capture ownership effects. Considerable disaggregation of foreign ownership is necessary, because the use of a dummy or continuous variables do not capture property rights regime shifts that occur in moving from one level of ownership to another.

Table 3 contains spline regression results where the dependent variable is return on sales. The first two columns contains estimates for the years upto and including 1991. The next two columns contains estimates for the post 1991 period. FOREIGN LOW, FOREIGN MEDIUM and FOREIGN HIGH are not significant for the years upto and including 1991. In the post 1991 period, when foreign firms were allowed 51 percent ownership we find that firms with ownership of 51 percent or more show higher returns on sales than firms with more than 25 percent but less than 51 percent foreign ownership. FOREIGN HIGH is significant in the post 1991 period, while FOREIGN MEDIUM and FOREIGN LOW are still not significant.

Table 4 contains spline regression results where the dependent variable is return on assets. FOREIGN LOW, FOREIGN MEDIUM and FOREIGN HIGH are, again, not significant for the years upto and including 1991. Again, only in the post 1991 period, when foreign firms were allowed 51 percent ownership, do we find that firms with ownership of 51 percent or more show higher returns on assets than firms with more than 25 percent but less than 51 percent foreign

ownership. However, only FOREIGN HIGH is significant in the post 1991 period, while FOREIGN LOW and FOREIGN MEDIUM are not significant.

As the results show, foreign ownership does affect firm performance but different categories of ownership have varying influences on return on sales and return on assets. More significant is the fact that in the pre 1991 period, when foreign owners could not exercise unambiguous control, the relationship between the level of foreign ownership and performance was not significant. Once the property rights regime changed in 1991, firms in which foreign owners had unambiguous control out-performed firms in which foreign owners did not exercise similar control. The concentration of domestic ownership, which could influence the ability of foreign investors to exercise control over a firm, does not have any significant influence on either measure of performance. The variable for domestic ownership concentration is not significant for either the pre 1991 period or the post 1991 period.

What do these results suggest? Foreign ownership does have a positive and significant influence on various dimensions of firm performance, but only when it crosses a certain threshold, one which is defined by the property rights regime. Not surprisingly, only FOREIGN HIGH in the post 1991 period shows a significant relationship with both measures of performance. FOREIGN MEDIUM and FOREIGN LOW are not significant in any of the regression models. Where property rights do not devolve on the foreign shareholders this may be due to a disinclination to provide capabilities, to the firm in which there is an ownership stake, which can lead to superior performance. Conversely, when property rights and control devolve to the foreign owner, then capabilities which help to generate superior performance are more likely to be supplied to the Indian firm.

In each of the regressions, the magnitude of the coefficient for FOREIGN HIGH is much larger than the coefficient for FOREIGN MEDIUM, while the coefficient estimate for FOREIGN MEDIUM is larger than that for FOREIGN LOW. These data denote that for each category of ownership the relationship between the level of ownership and performance differs. In other words, between every category of ownership there is a progressive increase in the steepness of the slope that captures the underlying relationship between foreign ownership and performance. In particular, FOREIGN HIGH has a greater influence on performance than either FOREIGN MEDIUM or FOREIGN LOW.

Strategic Implications: There are several managerial implications that devolve from the findings. The recent experiences of BAT PLC (formerly British American Tobacco Company Limited), a multinational company operating in the tobacco and financial services businesses, in India illustrates how the composition of shareholding can affect firms' strategies. BAT has capabilities in selling consumer products such as cigarettes as well as insurance policies. It aimed at using its Indian associate company called ITC Limited, which is also in the tobacco and financial services businesses, both as a supply platform for BAT's global tobacco operations as well as a vehicle through which to expand tobacco and financial services operations in India. Arguably, such a move could have led to an improvement in ITC Limited's overall performance.

In spite of owning approximately 36 percent of the shares in ITC Limited, BAT was unable to muster the necessary 51 percent majority, which would have included support from other domestic shareholders, that would have enabled it to make changes leading to expansion of ITC Limited's activities as well as changes in internal governance structure, with consequent performance impacts. This was because 38 percent of the domestic shareholding was

concentrated in the hands of Indian financial institutions. The other domestic shareholders followed the financial institutions' line rather than BAT's line in voting on the ordinary resolutions that were needed to make the necessary business expansion and internal governance changes. BAT was, however, able to stop the passage of a special resolution that would have allowed ITC Limited to venture into power generation. Such a move was construed as a radical diversification which could lead to the potential decline in the values of the holdings of all shareholders.

In the recent past, a number of foreign firms have raised their ownership stakes from 40 percent to 51 percent. For example, companies such as Procter and Gamble, Asea Brown Boveri and Alfa-Laval have increased their stakes in their Indian associates (Cable, 1995). Very recently, Hyundai Motors of South Korea has launched a 100 percent-owned greenfield venture to make automobiles in India. Thus, there is strong precedent that foreign firms do consider India as a worthwhile investment opportunity, with the results indicating that there are performance benefits to be gained if foreign firms do enhance the size of their investment stakes in Indian firms.

The case of Unilever PLC, also a consumer products multinational, is in contrast to the experience of BAT which did not raise its ownership stake to 51 percent. Even before 1991, Unilever PLC was allowed to retain its stake in Hindustan Lever Limited at 51 percent by agreeing to export substantial volumes of its output, which it did. Consequent to 1991 there was a large cash injection in Hindustan Lever Limited to finance a number of acquisitions of other Indian companies. Hindustan Lever Limited is now one of India's largest exporters, one of India's most profitable companies and a major contributor of managerial capital to Unilever PLC. At any time there are a very large number of Hindustan Lever Limited's managers who occupy senior positions in the Unilever PLC corporate office in London or in field operations around the world.

Hindustan Lever Limited is considered the best operating company within, and an integral part of, Unilever PLC's global operations, with consequent performance impacts.

Policy Implications: In the past the Indian government has attempted to restrict foreign ownership to 40 percent. The evidence shows that firms with foreign shareholding of 40 percent or more but less than 51 percent have not been superior performers. This means that Indian industry has missed opportunities in terms of unrealized spillover effects which arise from the presence of foreign firms in a host country. There has been a major attitudinal change in Indian policy after 1991, from a tolerance of foreign presence to actively welcoming new investment (Cable, 1995). Nevertheless, approvals for holding stakes which are greater than 51 percent are still granted at bureaucratic discretion, and the approval process is subject to political influences. The data reveal that superior performance is associated with foreign ownership levels of 51 percent and above. Therefore, the ownership stake allowed has to be more than 51 percent if the positive consequences of foreign firms investing in India are to be realized.

DISCUSSION AND CONCLUSIONS

Principal Conclusions: The results of this study, based on an analysis of data for a very large sample of Indian firms, supports the view that, after controlling for a number of critical firm and environment-specific factors, different categories of foreign ownership have varying impacts on firms' performance. Mascarenhas (1989) states that it is not ownership, per se, but the factors underlying ownership that matter. Control-enabling property rights are one such factor and, in terms of performance, firms in which property rights devolve unambiguously to foreign shareholders outperform firms in which foreign shareholders cannot exercise effective control.

The results also suggest that partial foreign ownership, over 25 percent but less than 40 per cent prior to 1991 and 51 percent thereafter, in which strategic control does not devolve to foreign firms may not be any better for foreign investors than investments made without expectations of control, which are investments of less than 25 per cent. With strategic control comes a level of profitability that is not available at lower levels of shareholding. If foreign investors wish to enjoy relatively superior returns in India they should think in terms of investing at levels that will provide them the strategic control. For the policy-maker in India, these results indicate clearly that if the full benefits of foreign ownership are to be reaped, full strategic control over firms by their foreign owners should be permitted.

Contributions: The ownership literature in general, as well as that part of it dealing with issues of foreign ownership, consists of two streams of work. In the first stream of work, ownership is a moderating variable between firms' strategy and performance. In the second stream of work, the ownership structure is a strategic choice variable (Gedajlovic, 1993). Our study is positioned within the first stream of work, and we do not address issues that might fall under the second stream of work. The choice of ownership structure is important for firms going abroad; however, examination of such choices is outside the scope of this study. Rather, we suggest that the specific property rights associated with different levels of ownership matter in determining whether foreign ownership is associated with superior performance.

The issue of property rights is important, since an implicit assumption of the second stream of ownership work is that firms possessing superior assets will opt for a strategy that enables them to retain tight control over foreign operations in order to protect the value of these assets (Teece, 1981). Our study contributes to the literature by providing evidence that only when

unambiguous control is exercisable, implying the ability to protect assets, do foreign owners realize the superior performance potential that is associated with foreign ownership. The issue of under what specific property rights circumstances does unambiguous control prevail in different ownership modes, such as franchising contracts, joint ventures, or where the state is the owner of firms, is general enough that it can addressed by other researchers working in the ownership field. What we have called done in this paper is to go deeper into specific institutional details, so that the effect of each particular property rights regime can be evaluated.

Our assessment of the specific level above which ownership and performance is significantly related has also been made possible because of the use of the spline regression model. The model allows disentangling of category and segment-wise relationships, and enables specific managerial and public policy conclusions to be drawn. There are a number of non-linear relationships which lend themselves to the application of the spline model in strategy research. For example, non-linearities can exist in the cross-sectional relationship between market share and profitability or between size and profitability. In dynamic relationships, the possibilities of non-linear relationships arising between time-varying co-variates is also high. Linear estimation in situations where the overall relationship is non-linear but segment-wise linear can confound the correct implications that ought to follow from the empirical analysis. Spline models are, therefore, generally useful in disentangling the actual relationships that exist within each segment of data and in arriving at more precise conclusions.

The analysis presented in the paper is the first detailed analysis of the influence of foreign ownership on firm performance in India. Even though this study has focused on foreign ownership of Indian firms, we believe that our focus on the link between performance and the nature of

institutions is important, and that this focus can be extended. As long as there is variance in the institutional setup between different countries, the impact of similar degrees of ownership on firm performance is likely to vary. Thus, the evaluation of such variances can be subjects of future comparative research by strategy researchers.

Future Research: Cable (1995) lists the reasoning behind the Indian government's opening-up of the foreign investment regime as being influenced by several considerations, which are: to attract external capital flows to finance the current account deficit so as not to add to debt-service obligations; to augment capital formation, particularly in sectors where supply shortfalls have resulted from lack of domestic investment; to use inflows of investment by multinationals as a way of raising confidence in India, improving the prospects for improved credit ratings; and to use foreign companies' access to international trading networks to generate export earnings.

Empirical examination of a number of the considerations that Cable (1995) suggests underlies the promotion of foreign investment fall within the ambit of macro-economics research. However, there are three firm-level issues that call for research effort. First, foreign owned firms can be more globally oriented than purely domestic firms, because they may have access to the international trading networks and market knowledge of their parents (de la Torré, 1974). Second, foreign investments can have spillover effects within the domestic sector of a host country, raising performance levels even for firms in with no foreign ownership as a consequence of imitative effects (Blomstrom and Persson, 1983). Third, the exacerbation of competitive pressures by foreign owned firms can influence domestic firms to become more efficient (Balassa, 1989). Examination of these question lie within the purview of strategy research.

Our analysis has also been limited by the absence of time-series data on ownership. Ideally, we would like to examine how changing ownership patterns influence firms' performance. Unfortunately, data on changes in ownership are not easily available for most Indian firms. The stock markets are only now being automated, and share transfers take over six months to be registered. This research has not dealt with another issue, qualitative variations among the domestic partners of foreign investors. Foreign investments can be made in investor-owned publicly-quoted Indian corporations, privately-held Indian family-led firms, and firms which operate in the joint sector. It is conceivable that different categories of domestic ownership may also constrain the influence foreign owners can have on a firms' performance. Such an issue needs to be empirically investigated.

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TABLE 1: Description of Variables

Variable	Description
	Dependent Variables:
RETURN ON ASSETS	Profit after depreciation, interest and taxes as a ratio of total assets
RETURN ON SALES	Profit after depreciation, interest and taxes as a ratio of net sales
	Independent Variables:
FOREIGN: DUMMY	Dummy variable where 1= presence of foreign shareholding and 0 = no foreign shareholding
FOREIGN: CONTINUOUS	The level of foreign shareholding
FOREIGN: LOW	Foreign shareholding up to 25 percent
FOREIGN: MEDIUM	Foreign shareholding between 25 and 40 percent for the years up to 1991, and between 25 and 51 percent after 1991
FOREIGN: HIGH	Foreign shareholding over 40 percent up to 1991, and over 51 percent after 1991.
DOMESTIC OWNER	Dummy variable where 1= presence of domestic shareholder with ownership of 25 percent or more and 0 = no such shareholding
EXPORT SALES	Ratio of exports to total sales of each company
IMPORTS	Ratio of imports to total operating expenses
SIZE	Log of sales
AGE	Number of years since incorporation till the date for which data are reported
DIVERSITY	Index between 0 and 2 denoting the extent of diversification of each firm into different business areas; 0 denoting single-product firms, 1 denoting multiple activities in related areas and 2 denoting widely diversified firms
GROUP	Dummy variable taking on the value 1 if the firm is classified as belonging to a business group, and 0 if it is classified as an independent company
ADVERTISING	Ratio of advertising expenses to total operating expenses
MARKETING	Ratio of marketing expenses to total operating expenses
DISTRIBUTION	Ratio of distribution expenses to total operating expenses
NET FIXED ASSETS	Ratio of net fixed assets to total assets
QUICK RATIO	Ratio of cash and other short-term realizable assets to total current liabilities
INVENTORY	Ratio of inventory investment to investments in total assets
SALES GROWTH	Ratio of current year to previous year's sales
DEBT EQUITY	Ratio of total debt to total equity
EXCISE	Ratio of excise duties paid to total sales

TABLE 2: REGRESSION RESULTS - NON-SPLINE MODELS
(CONTROL VARIABLES NOT REPORTED)

	1991 and Prior Years		*Post 1991*	
Panel (A): *Dependent Variable - Return on Assets*				
	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error
Constant	4.450	5.057	11.127	3.870
FOREIGN (DUMMY)	0.631	1.966	-1.891*	0.999
Panel (B): *Dependent Variable - Return on Sales*				
Constant	3.384	2.949	19.185	6.941
FOREIGN (DUMMY)	-0.004	3.069	-3.059*	1.770
Panel (C): *Dependent Variable - Return on Assets*				
Constant	46.568	4.557	11.445	3.824
FOREIGN (CONTINUOUS)	0.025	0.051	0.023	0.021
Panel (D): *Dependent Variable - Return on Sales*				
Constant	9.192	7.711	18.955	6.952
FOREIGN (CONTINUOUS)	-0.083	0.085	-0.004	0.038

* $P < 0.05$

TABLE 3: REGRESSION RESULTS--SPLINE MODELS

	Dependent Variable: Return on Sales			
	1991 and Prior Years		*Post 1991*	
	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error
Constant	-1.626	4.232	6.739	3.004
Foreign Low	-0.014	0.058	-0.019	0.021
Foreign Medium	0.125	0.202	0.068	0.058
Foreign High	-0.483	0.707	0.304*	0.111
Domestic Owner	1.766	1.632	0.197	0.597
Exports	0.067	0.044	0.914*	0.015
Imports	-2.560	5.350	3.750*	1.806
Size	0.701	0.562	0.501*	0.251
Age	-0.054*	0.028	-0.027*	0.011
Diversity	0.160	1.081	0.336	0.404
Group	-1.447	1.301	0.335	0.566
Advertising	0.235	0.389	0.234	0.197
Marketing	-0.171	0.261	0.004	0.087
Distribution	0.028	0.326	-0.345*	0.088
Net Fixed Assets	0.089*	0.041	0.036*	0.016
Quick Ratio	7.557*	2.325	8.514*	1.178
Inventory	-0.003	0.059	-0.065*	0.026
Sales Growth	-0.006*	0.001	-0.001	0.001
Debt Equity	-0.303*	0.189	-0.698*	0.085
Excise	0.081	0.702	-0.054*	0.025
Agriculture			1.245	2.577
Chemical	-1.604	1.869	0.061	0.678
Engineering	-1.871	1.330	-1.791*	0.624
Food	-2.589	3.185	-1.892	0.915
Finance	13.911*	7.198	12.146*	2.280
Mining			2.122	4.777
Textile	-1.542	1.909	-2.106*	0.834
R^2		0.306		0.354
F		2.934		15.310

*P < 0.05

TABLE 4: REGRESSION RESULTS--SPLINE MODELS

	Dependent Variable: Return on Assets			
	1991 and Prior Years		*Post 1991*	
	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error
Constant	1.983	3.530	7.896	2.417
Foreign Low	0.021	0.050	-0.004	0.018
Foreign Medium	0.148	0.176	0.047	0.051
Foreign High	0.051	0.618	0.239*	0.092
Domestic Owner	0.946	1.353	0.218	0.483
Exports	0.033	0.037	0.055*	0.123
Imports	-2.297	4.405	-1.961	1.409
Size	0.758	0.492	0.540*	0.200
Age	-0.056	0.025	-0.024*	0.009
Diversity	0.417	0.995	0.201	0.361
Group	-0.179	1.085	-0.122	0.447
Advertising	-0.035	0.336	0.260	0.162
Marketing	0.031	0.228	0.139*	0.072
Distribution	-0.542*	0.202	-0.237*	0.069
Net Fixed Assets	-0.019	0.035	-0.039*	0.013
Quick Ratio	1.455	1.869	-0.592	0.769
Inventory	0.007	0.048	-0.067*	0.019
Sales Growth	-0.003*	0.001	-0.001	0.001
Debt Equity	-0.392*	0.172	-0.561*	0.060
Excise	0.032	0.612	-0.023	0.022
Agriculture			1.126	2.020
Chemical	-0.888	1.557	0.206	0.567
Engineering	-1.062	1.194	-1.049*	0.511
Food	-0.393	2.538	-0.931	0.767
Finance	0.315	4.653	2.854*	1.428
Mining			1.189	3.786
Textile	-1.149	1.654	-1.444*	0.705
R^2		0.201		0.217
F		1.667		7.750

*P < 0.05