We examined the roles of institutional investors, boards of directors, and technological opportunity in relation to international diversification. Our research contributes to both agency and foreign direct investment theories. In data on 197 large U.S. firms, we found significant relationships between institutional ownership and international diversification. International diversification was favored by (1) professional investment funds along with outside board members and (2) pension funds along with inside board members. Also, pension funds’ long-term orientation facilitated internationalization in industries with high technological opportunities. The results suggest that different institutional owners have different stakes in firms’ international strategies, and the effects of boards of directors and technological opportunity accentuate these differences.
view that overseas expansion may be a signal of diminishing domestic market returns (Doukas & Travlos, 1988).

Agency theory suggests that investors need to be concerned with international diversification because of the significant benefits and risks associated with this important strategy (Carpenter, Sanders, & Gregersen, 2001; Datta & Puia, 1995; Sanders & Carpenter, 1998). According to the Conference Board’s Global Corporate Governance Center, “U.S. institutional investors clearly have increasing economic clout in international markets to insist that corporations adhere to high levels of shareholder accountability” (Conference Board, 2000: 27). Although all types of institutional investors may be equally attracted to the opportunities presented by firm international diversification, the differences in the interests of these investors can have important consequences.

Because of the size of institutional owners’ holdings and their growing activism concerning multinational firms, the variation in their involvement in international diversification is particularly important for corporate managers and the investing community. Managers pursuing growth opportunities in international markets need to consider the support from various institutional shareholders. The confidence of these large investors may help managers to secure funds for costly overseas projects and thereby can significantly affect the success of international strategies. The different attitudes toward firms’ international diversification held by separate groups of institutional investors, such as pension funds and professional investment funds, are of interest to the investing community as well. Individual clients seeking diversification opportunities may effectively invest in multinational firms through institutional investors that are keenly interested in international diversification but are also able to govern managerial opportunism. Furthermore, the knowledge of different international investment preferences held by institutional investors may help members of the investing community to select the funds that better fit their investment strategies in terms of time horizon, return, risk, and other preferences.

A central purpose of our study was to examine the effects of pension funds and professional investment funds on international diversification via agency and foreign direct investment theories. Although both groups of shareholders may have a positive effect on firm international diversification, they also likely have different stakes in this important firm strategy. We expected the dissimilar interests of professional investment funds and pension funds toward international diversification to be contingent upon the influence of boards of directors and also the effects of technological opportunity. A firm’s board of directors may moderate the relationship between institutional shareholders and international diversification because board members represent an additional vehicle for monitoring this critical decision. Although limited, prior research has shown that the relationship between different institutional investors and board composition differs for internal and external corporate innovation strategies (e.g., Hoskisson et al., 2002).

This work provides an extension by examining how the alignment of the interests of professional investment funds and pension funds with the interests of different board members affects firms’ international diversification. Because different governance constituents (institutional investors and boards of directors) can provide differing types of support for vital corporate strategies such as international diversification, this line of inquiry has important theoretical implications. Another important moderator in this context, technological opportunity, has been the focus of international business research (e.g., Kobrin, 1991). However, there is little empirical evidence on how different investors consider this variable with regard to a firm’s foreign direct investment. Because technological opportunity in a domestic industry environment often motivates firms to enter new international markets, institutional investors often are keenly interested in this investment pattern.

INSTITUTIONAL INVESTORS AND INTERNATIONAL DIVERSIFICATION

The concentration of ownership may be an effective approach to controlling the agency problems caused by the separation of risk-bearing and decision functions in firms (Alchian & Demsetz, 1972; Shleifer & Vishny, 1997). Large institutional investors, categorized by the Securities and Exchange Commission (SEC) in its rule 13-f as entities that manage at least $100 million in equity on the behalf of others, have become significant players holding more than half of U.S. corporate equity (Gompers & Metrick, 2001). However, concentration of voting power in institutional investors is only a partial indicator of ownership influence: shareholder power is increased by “the frequency with which voting congeals into decisive changes” (Alchian & Demsetz, 1972: 788). Thus, some institutional investors have gained power through increased activism (Baysinger, Kosnik, & Turk, 1991; David et al., 2001; Taylor, 1990; Zahra, 1996). Davis and Thompson (1994) argued that increased activism,
in fact, is appealing to large shareholders because of their major stakes in corporations. The barriers to these investors’ divestment of their stakes are high, and they have few options for alternative (large) investments.

Although acknowledging the different interests of shareholders and debt holders (e.g., Jensen & Meckling, 1976), proponents of agency theory do not differentiate between types of large equity holders. Only recently have studies acknowledged that the identity of such owners has important implications for firms because different owners can have different objectives (Bushee, 1998; Thomsen & Pedersen, 2000). As a result, some empirical studies have explored the differences in the interests of separate types of institutional owners, such as professional investment funds, pension funds, banks, and insurance companies.

Results of this emerging stream of research indicate that the different interests of institutional investors are important for firm strategies; thus, a focus on the characteristics and investment styles of these different owners could enrich agency theory. Accordingly, Brickley and colleagues (1988) classified institutional investors into “pressure-resistant,” “pressure-sensitive,” and “pressure-indeterminate” institutions. A study by Kochhar and David (1996) suggested that pressure-resistant institutions (pension funds, mutual funds, endowments, and foundations), which are unlikely to have vital business connections with the firms in which they invest, have a stronger influence on firm innovation than pressure-sensitive institutions (insurance companies and banks), which are likely to have business relationships with the firms in which they invest. Other recent findings also suggest that understanding pressure-resistant investors is particularly important from the perspective of agency theory (Bushee, 1998, 2001). Even though different pressure-resistant institutions may be equally interested in significant strategic decisions, such as international diversification, their characteristics can help explain their specific attitudes and actions. Thus, a finer-grained examination of pressure-resistant institutional investors—focusing, for instance, on the differences between professional investment funds and pension funds—in the international context could further enrich theory.

A major group of pressure-resistant institutional investors, professional investment funds, generally prefer stocks with high visibility and are averse to low-price stocks, stocks on which there is little information, and small firms’ stocks (Falkenstein, 1996). Badrinath and Wahal (2002) found that these funds display higher sensitivity to past returns than do pension funds. The holdings in professional investment funds’ portfolios tend to turn over frequently; one estimate is that the average holding period is about one year for over 80 percent of the shares held by these funds (Gilson & Kraakman, 1991). A primary reason for the short-term holdings is the professional investment funds’ internal incentive systems; fund managers’ compensation is frequently based on quarterly evaluation of the sizes and net asset values of their portfolios (Baysinger et al., 1991). Inadequate short-term portfolio performance may prompt funds to replace their investment managers (Khorana, 1996; O’Barr & Conley, 1992). The clients of professional investment funds consist primarily of individual investors making largely non-tax-exempt investments (Lang & McNichols, 1997). When making portfolio decisions, these individual clients tend to rely on a narrow scope of investment information, such as newspapers, magazines, and investment newsletters (Del Guercio & Tkac, 2000). Regardless of the benchmarks they use, the individual clients’ investment decisions affect the asset flow and performance relationship in professional investment funds (Badrinath & Wahal, 2002).

Alternatively, pension funds, another pressure-resistant group, tend to emphasize yields over longer time horizons than professional investment funds (Gilson & Kraakman, 1991; Smith, 1996). Protecting the long-term interests of their members, public pension funds often own broadly diversified portfolios and engage in active performance monitoring of their stock holdings (Bethel & Liebeskind, 1993; Pound, 1992). Although pension funds do not explicitly index their portfolios of investments, they usually follow a buy-and-hold strategy (Bushee, 1998; David et al., 2001; Lang & McNichols, 1997). The orientation of pension funds is also due to the client characteristics of these institutional investors. Del Guercio and Tkac (2000) argued that pension funds’ investors, who are caretakers of the resources of large numbers of individuals (the employees who are to receive pensions), are more financially sophisticated than typical mutual fund investors, who are primarily individuals with limited professional sophistication. Focusing on pension funds’ interest in corporate refocusing, Abarbanell, Bushee, and Raedy (2001) provided evidence that these institutional investors, because of their stringent fiduciary standards, rebalance their portfolios shortly after firms spin off some of their business operations. Using an information-processing perspective, Hoskisson and colleagues (2002) showed that pension funds prefer firms engaged in internal innovation over firms that pursue external innovation through acquisition.
Although there are other groups of institutional investors that could be interested in the potential benefits of international diversification, prior research suggests that their governance role is limited in this context. Consequently, we focused on the differing effects on firm international diversification of two distinct types of pressure-resistant institutional investors, professional investment funds and pension funds.

**The Effects of Professional Investment Funds and Pension Funds**

Some of the largest U.S. institutional investors manage broad portfolios of foreign securities and are active investors in international equity markets (Norburn, Boyd, Fox, & Muth, 2000). However, they face significant barriers to capital flows, institutional restrictions, and heightened information asymmetries in foreign environments (Agmon & Lessard, 1977; Doukas & Travlos, 1988). Noting the institutional differences across countries, Shleifer and Vishny (1997) argued that the effectiveness of control by large shareholders is tied to the ability to exercise their control rights. In Russia, for instance, local investors can control firms with significantly less ownership than the amount of holdings needed by Western investors. In some cases, foreign shareholders may even have their holdings declared illegal or may discover that certain business decisions require “super majorities” or that voting records are “lost.” Local investors in Russia may also have better access to other shareholders and to courts and, in some cases, they have even used physical force to influence the management of companies in which they are invested (Shleifer & Vishny, 1997). Multinational firms, on the other hand, can effectively overcome informational externalities and institutional restrictions to gain cost savings that cannot be obtained by investors in international markets (Doukas & Travlos, 1988).

Thus, firm international expansion may be able to provide diversification at a lower cost than the owners can achieve by investing in foreign securities, a major advantage of foreign direct investment (Agmon & Lessard, 1977; Harris & Ravenscraft, 1991; Sanders & Carpenter, 1998).

In addition to its potential benefits, however, firm international diversification has potential costs for shareholders, prompting their increased involvement. Firms that experience declining returns and intense competition in their domestic markets often diversify internationally to survive (Shapiro, 1982). However, cultural differences and inadequate understanding of the foreign market can result in overpayment for international investments, which in turn has negative shareholder effects (Datta & Puia, 1995). Investors in multinational firms also face higher potential agency costs because of the difficulty of monitoring the performance of a diverse set of foreign operations (Fatemi, 1984).

Professional investment funds may seek to take advantage of international opportunities and to overcome agency problems by relying on quick entry and exit as their investment strategy. Professional investment funds are likely to be interested in international diversification because of its potential positive effect on shareholder wealth (rapid returns). For example, shareholders of multinational firms that enter countries with no previous international operations have experienced significant, positive, abnormal returns shortly after the announcement of international acquisitions (Doukas & Travlos, 1988). Additionally, shareholders of these multinational firms tend to realize the highest gains when the firms expand into markets unrelated to the U.S. economy. Professional investment fund managers may favor quick stock value gains from international diversification, because of their short-term holdings, high rates of turnover in their portfolios, and significant competition for clients (Falkenstein, 1996; O’Barr & Conley, 1992). Despite being relatively free from legal pressures, professional investment funds’ interests are in alignment with their clients’ interests regarding international diversification. These clients often adjust or trade their portfolios on demand and thus can be attracted to announcements of international diversification. In addition, the lack of information for investors is particularly problematic in the highly uncertain international securities markets (e.g.,

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1 There is limited empirical evidence on other types of institutional investors, such as banks, insurance companies, private pension funds, colleges, and foundations. Some of these investors have been classified as pressure-sensitive or pressure-indeterminate in prior studies (Brickley et al., 1988; Bushee, 1998; Kochhar & David, 1996). Banks, because of current or potential business transactions with a firm’s management, have an obligation to support the management’s agenda. Therefore, banks tend to be more passive investors (Davis & Thompson, 1994). The equity holdings of insurance companies are often designed to provide a safety net for these firms, and policyholders normally have little influence on the holdings of insurance companies (Badrinath, Kale, & Ryan, 1996; Bushee, 2001). Private pension funds are established by firms to provide for the retirement of their employees and therefore are not designed to assert control over the firms’ strategies (Davis & Thompson, 1994). Additionally, colleges and foundations have been noted for their lack of activism (Useem, 1996).
Doukas & Travlos, 1988). Thus, international diversification by multinational firms can be an attractive alternative for the clients of professional investment funds (Del Guercio & Tkac, 2000). These arguments suggest that firm international diversification presents opportunities that are of interest to professional investment funds.

**Hypothesis 1. Institutional ownership by professional investment funds is positively related to firm international diversification.**

On the other hand, pension fund managers emphasize yields over longer time horizons, to better serve the long-term interests of their constituents (Gilson & Kraakman, 1991). Because their obligations often extend over generations, pension funds are concerned about long-term economic indicators, such as productivity, job growth, and global competitiveness (O’Barr & Conley, 1992). Pension funds also have stringent fiduciary responsibilities (Bushee, 2001). Their constituent owners often are conservative; thus, pension fund managers may be less willing to invest in firms listed on foreign stock exchanges because of potentially significant information asymmetries. Alternatively, they may be willing to invest in domestic firms that are internationally diversified and have positive long-term prospects. Pension fund clients’ conservatism might pressure fund managers to avoid firms engaged in risky international ventures, thereby avoiding potential hazards of international diversification. Beyond their orientation, the buy-and-hold investment strategy of pension funds may help firm executives to secure long-term funds for potentially costly international ventures with longer-term payoffs (Lang & McNichols, 1997). Furthermore, because of their long-term interests, pension funds are also likely to be active monitors of these international investments, because they seek to avoid the downside risk international operations can entail. Therefore, pension funds are interested in international diversification, but for different reasons than professional investment funds have. Thus,

**Hypothesis 2. Institutional ownership by pension funds is positively related to firm international diversification.**

The differences between pension and professional investment funds can be more fully understood by examining the role of two moderating variables, board of directors’ composition and technological opportunity.

**Boards of Directors’ Role**

An effective board of directors can protect the interests of shareholders by ensuring that a firm’s management formulates effective strategies (Eisenhardt, 1989; Fama & Jensen, 1983; Mizuru, 1983). In fact, in recent years institutional owners have taken a strong interest in the boards of the firms in which they hold ownership, as a means of monitoring and controlling the strategic actions of these firms’ managers (David et al., 2001). Although there is agreement on the importance of the boards of directors for firm strategies and performance, results of prior studies have been inconclusive (Dalton, Daily, Ellstrand, & Johnson, 1998). Independent outside directors, who are not employed by a firm and do not have an affiliation with its management, are considered important for controlling agency costs, because they can be more effective in aligning the interests of owners and managers (Daily & Dalton, 1992, 1994). These directors often have relatively little knowledge of the firm’s specific strategies, but they apply their broad corporate experience in fulfilling their oversight role (Baysinger & Hoskisson, 1990). Prior research has indicated that outside directors are involved in strategic change, restructuring, and corporate entrepreneurship (Johnson, Hoskisson, & Hitt, 1993; Pearce & Zahra, 1992; Zahra, 1996). Accordingly, they are also likely to support international diversification because of the potentially positive returns.

Professional investment funds are likely to invest in firms with adequate representation of outside directors because agency costs will be lower, and thus expected short-term returns will be higher. Because international diversification can produce quicker returns when a firm enters a new foreign market with minor product adjustments (Doukas & Travlos, 1988), professional investment fund managers are more likely to favor this investment in firms with adequate outside directors. Additionally, outside directors often have experience with international diversification as managers for other firms and thus are knowledgeable about the positive effects of this strategy on firm performance (Sanders & Carpenter, 1998). Outside directors’ knowledge gives investors confidence that a firm will enter appropriate international markets and yield benefits to shareholders beyond those available in international securities markets. The monitoring capabilities of outside directors are likely to be important for managers of professional investment funds, as they need to continuously turn over “underperforming” holdings to ensure high fund
performance, secure their jobs, and attract new clients (Falkenstein, 1996). Thus,

Hypothesis 3. Outside directors moderate the relationship between ownership by professional investment funds and international diversification: the relationship will be stronger for firms with higher representation of outside directors on their boards.

Inside directors, on the other hand, are active participants in firm decisions as members of their top management teams, and they therefore have access to internal information regarding firm resources, projects, and strategic alternatives (Baysinger & Hoskisson, 1990). The insights of these inside board members can be valuable to institutional investors. For example, Hoskisson and colleagues (2002) found that pension fund managers operating in the domestic U.S. context are more likely to invest in firms with effective inside directors. They may wish to avoid undue risks, but inside directors are interested in pursuing projects that have the potential to produce long-term positive returns (Zahra, 1996). These directors may support taking advantage of new international market opportunities because of the potential for expanding sales and increasing profits over time. Multinational firms frequently experience higher economic and political risks (Burgman, 1996; Doukas & Travlos, 1988; Fatemi, 1984). However, inside directors’ knowledge of firm resources and capabilities may be utilized in international markets and thus may help to overcome the increased risks associated with foreign involvement (Ellstrand, Tihanyi, & Johnson, 2002).

Furthermore, the potential agency conflicts between these insiders and a firm’s long-term owners, such as pension funds, are reduced when inside directors hold ownership positions and have longer-term incentives (Lippert & Moore, 1995). Insider incentives, such as stock options, may effectively substitute for explicit monitoring by owners (Jensen & Meckling, 1976). However, Meulbroek (2001) argued that the non diversified personal holdings of inside directors expose them to high volatility and risk. Inside directors thus have an incentive for interest in long-term strategic opportunities for their firm, such as international diversification. The potential for “bonding” (close alignment of preferences) with inside directors is likely to be especially high for pension funds because they follow a buy-and-hold investment strategy and seek a lower security turnover rate (Jensen & Meckling, 1976). Smith and Watts (1992) suggested that this bonding is more pronounced when there is a rich opportunity set of investments for managers. In addition, the pension funds’ penchant for monitoring international activities (e.g., Norburn et al., 2000) likely reduces the likelihood of self-serving behavior by inside directors with regard to international diversification. Thus, we propose that because of their interest in the long term, especially given incentives, inside directors’ actions will align well with the interests of pension fund managers regarding internationalization. Therefore, high levels of inside director incentives, including equity and stock options, may increase pension fund managers’ support for international diversification.

Hypothesis 4. Inside directors moderate the relationship between ownership by pension funds and international diversification: the relationship will be stronger for firms with higher inside director incentives.

Technological Opportunity

Prior studies in domestic settings have shown that technological opportunity (the degree to which a firm’s market or industry demands or accepts product innovation) has a significant effect on innovative output and firm performance (Baysinger & Hoskisson, 1989; Kelm, Narayanan, & Pinches, 1995; Sharma & Kesner, 1996). The importance of technological opportunity is partly due to the spillover effects of economic knowledge externalities found in high-technology industries (Audretsch & Feldman, 1996).

Since Vernon offered his (1966) product life cycle theory, technological opportunity in a firm’s domestic industry has been of central interest to research on foreign direct investment (Dunning, 1993; Hitt et al., 1997). International diversification helps innovative firms to acquire the resources needed to develop new products and services, transfer specialized technological knowledge, and recover investments before their innovative products and services become obsolete (Caves, 1982; Harris & Ravenscraft, 1991; Kobrin, 1991). The link between technological opportunity and internationalization is often explained in terms of the product characteristics of industries, which are captured by designations such as Hecksher-Olin and Schumpeterian (Almor & Hirsch, 1995; Dunning, 1993). Hecksher-Olin products are mature goods, such as textiles, food, wood, and paper, produced by widely available technologies and normally sold in developing countries. Schumpeterian products are manufactured in industries with high technological opportunities, such as computers, drugs, and electronics. Because of the underlying technological intensity, national markets are
often insufficient to support the development of Schumpeterian products. In fact, Kobrin (1991) argued that technological opportunity is the most important determinant of global integration. Researchers have found that firms from Schumpeterian industries are more internationally diversified than firms from Hecksher-Olin industries (Almor & Hirsch, 1995; Buckley & Dunning, 1976).

Owing to the high levels of R&D spending and the long payback periods associated with such investments, firms in industries with high technological opportunity tend to be carefully monitored by their shareholders (Zahra, 1996). Although innovation may lead to sustained competitive advantage, it often requires the investment of significant amounts of resources over a long time, leading firms to diversify into international markets (Kobrin, 1991). Because of the additional resources that are required to diversify internationally, firms simultaneously operating in high-technology industries and diverse international markets can be both resource-intensive and focused on long-term returns (Caves, 1982; Kotabe, 1990). As a result, managers of professional investment funds are less attracted to international diversification when a firm is operating in industries with high technological opportunities.

Professional investment funds have the resources to collect information on profit opportunities in various industries because their portfolios are large. When they experience performance problems, the managers of these funds tend to divest their holdings (Falkenstein, 1996; Porter, 1992). However, short-term performance declines are common in firms operating in high-R&D industries, resulting in limited ownership positions in such industries by professional investment funds (Bushee, 1998). O’Barr and Conley (1992) suggested that managers of professional investment funds are particularly vulnerable to short-term performance declines in their holdings because they are likely to be replaced when these occur. In support of these arguments, Zahra (1996) found short-term investors discouraged innovation and venturing because of the long time required to obtain returns. As firms in industries with high technological opportunities attempt to recover their R&D investments, generate additional resources, or defend their patents by entering overseas markets, they may find little support from their professional investment fund owners.

**Hypothesis 5.** Technological opportunity moderates the relationship between ownership by professional investment funds and international diversification: the relationship will be weaker for firms from industries with higher technological opportunity.

Pension funds are likely to be more positive regarding international expansion decisions in industries with high technological opportunity. For example, Morck and Yeung (1991) reported that the capability to develop new products is a driving force in the relationship between governance and international diversification. They found that owners (ownership types were not differentiated) are more favorably predisposed to international diversification when the firm in question has the ability to innovate. As they have relatively little pressure for immediate returns, pension funds are likely to be interested in the development of innovative capabilities (David et al., 2001; Kochhar & David, 1996). Because of their long-term focus, pension funds are able to provide high-technology industries “the patient capital necessary to exploit growth opportunities” (Zahra, 1996: 1721). David and his colleagues (2001) argued that, because of their greater activism, pension funds engage in evaluation of the potential gains associated with innovation strategies. Pension funds’ favorable predisposition toward firm innovation and the long period necessary to realize gains from it create a preference for international diversification among pension fund managers, who view it as a means to mitigate the problems associated with entrepreneurial risk and short product life cycles. Therefore, firms in industries with high technological opportunities might benefit from the long-term interest of pension funds; international diversification extends the sales potential of innovation and the opportunity for strong returns from it.

**Hypothesis 6.** Technological opportunity moderates the relationship between ownership by pension funds and international diversification: the relationship will be stronger for firms from industries with higher technological opportunity.

**METHODS**

**Sample**

The sample of 197 firms was drawn from the 1996 Standard & Poor’s (S&P) 1500 as listed on the COMPUSTAT Annual Data Tape and the COMPUSTAT Business Segment Tape. The sample was limited by the availability of data on the variables of interest for this study. For example, missing institutional ownership and governance data resulted in reductions in the sample. In addition, firms had to report three different types of interna-
tional diversification measures to be included in the study. We conducted \( t \)-tests on differences in firm size and technological opportunity between our sample and the S&P 1500. The results were not statistically significant, suggesting that our sample was not biased along the dimensions examined. Furthermore, the sample represents firms from a broad range of industries (SIC codes 1311–9997). The 1990s provided an appropriate setting for this study, given that the period witnessed, in addition to the noted dramatic increase in activism by institutional investors (Pound, 1992; Smith, 1996), the growing globalization of U.S. industries. Increasing internationalization was influenced by various factors, such as intense competition and entry by foreign firms into domestic markets, reduction of barriers to foreign direct investment in overseas markets, and the opening of new markets in transition and other emerging economies.

**Measures**

**Dependent variable.** Prior studies on international diversification have recommended the use of multiple measures to improve validity (Sullivan, 1994). Following prior research, we measured international diversification by combining three widely used measures: (1) firm sales from foreign operations divided by total firm sales, (2) foreign assets divided by total assets, and (3) the number of foreign subsidiaries divided by the total number of subsidiaries (e.g., Sanders & Carpenter, 1998; Sullivan, 1994; Tallman & Li, 1996). The results of a factor analysis indicated that these three individual variables “loaded” on the same factor. The factor loadings for the three measures were .85 (foreign sales per total sales), .85 (foreign assets per total assets), and .67 (foreign subsidiaries per total subsidiaries); the Cronbach alpha for the factor was .73. Sales and assets figures from foreign operations and subsidiary data were obtained from Worldscope and Compact Disclosure in 1997. Total sales and assets data were obtained from COMPUSTAT for the same year.

**Independent variables.** COMPUSTAT data used for the independent and control variables were collected for 1996. Board data were collected from proxy statements for 1996. Technological opportunity was defined as average industry R&D divided by average industry sales at the two-digit SIC level (Baysinger & Hoskisson, 1989).

Inside directors were defined as members of a firm’s board of directors who were current firm employees. Our variable, a measure of the incentives of the inside directors on a board, consisted of two indicators: (1) inside director equity as a percentage of total equity and (2) the value of inside directors’ stock options, expressed as its logarithm. We valued inside directors’ stock options using the Black-Scholes method provided by Standard & Poor’s ExecuComp data. The factor loadings were .83 (inside director equity) and .85 (inside director stock options), and the interitem correlation between these two measures was .62.

The presence of outside directors was assessed as the ratio of independent outside directors on a board. Drawing on prior research (Daily & Dalton, 1994), we defined affiliated outside directors using SEC regulation 14A, item 6(b), according to which affiliated directors include relatives, customers, suppliers, former employees, lawyers, and bankers. Affiliated outside directors were removed from the sample as they might not have the same incentives as or the objectivity of true independent outside directors (Daily & Dalton, 1994; Gilson, 1990; Johnson et al., 1993). The remaining outside directors were classified as independent outsiders with no affiliation with a firm except as directors. The outside director ratio is the number of independent outside directors divided by board size.

Institutional ownership data for 1996 were collected from the Compact Disclosure CD. Public pension funds were identified from the 1994 Pensions and Investments: Directory of the 1000 Largest Pension Funds. As in prior research (e.g., Johnson & Greening, 1999), pension funds ownership was operationally defined as the percentage equity ownership. Owners were classified as mutual funds if they appeared in the Investment Company Institute’s Directory of Mutual Funds for 1993–94. Securities brokers and investment banks were those firms operating in the securities industry (SIC codes 60–62). Ownership by professional investment management funds was also measured as their percentage of equity ownership. We imposed a 1 percent equity ownership cutoff to remove institutional owners with marginal equity positions and included only funds with ownership adequate to promote interest and activism (Demsetz & Lehn, 1985; Johnson & Greening, 1999; Smith, 1996).

**Control variables.** Prior research has indicated that performance may be associated with international diversification (Dunning, 1993; Geringer et al., 1989). Such an association might rely on the ability of firms with abundant resources to cover the costs of doing business globally. Thus, we included firm performance as a control variable, operationally defining it as return on assets (ROA). Firms may also enter foreign markets to offset their problems in domestic markets (Doukas & Travlos, 1988). We included firm leverage, assessed as debt divided by sales, as a control variable. In addition,
firm size has been associated with international diversification in past studies (Tallman & Li, 1996; Wolf, 1977). Large firms tend to have the resources needed to operate successfully in foreign markets. International diversification requires substantial capital for new plants, (domestically unavailable) human resources, and information systems upgrades to cope with increased organizational complexity (Dunning, 1993; Fatemi, 1994; Kotabe, 1990). Accordingly, we controlled for firm size, measuring it as the logarithm of total assets.

Industry membership may also have an effect on international diversification. For example, differences in demand conditions, market characteristics, and government regulations among countries may lead to variation in different industries’ opportunities to internationalize. Therefore, we included industry as a control variable, constructing dummy variables following the procedure used by Amburgey and Miner (1992). We divided firms into eight industry groups on the basis of their four-digit SIC codes, including extractive, processing, equipment manufacturing, electrical/electronic equipment, textiles/apparel, consumables, software/business services, and trade. We used effect coding, to show no preference for any industry group as a reference category (Kerlinger & Pedhazur, 1973). This procedure has the advantage of not requiring that industry dummies be compared to the omitted category in the intercept.

Hierarchical regression analysis was used for the estimation of all models. Within this procedure, the control variables were entered first; the direct effects were entered second, followed by the individual interaction terms. Finally, we estimated a global model containing all of the variables. The change in the amount of variance explained (measured as $R^2$) was computed for each model.

**RESULTS**

The intercorrelation matrix and descriptive statistics are presented in Table 1. Given the scale differences between the items used to create the international diversification and inside director variables, we centered the items prior to combining them for each variable. In addition, all variables used to construct interaction terms were also centered. We report noncentered means and standard deviations in the correlation matrix to simplify interpretation. To test for the presence of multicollinearity, we followed procedures outlined by Neter, Wasserman, and Kutner (1985). Variance inflation factors (VIF) and a linear dependency test were used to test for collinearity. None of the VIF scores approached the commonly accepted threshold of 10 used to indicate potential multicollinearity problems. These results suggested that multicollinearity was not a problem.

Results of the hierarchical regression models used to test hypotheses are presented in Table 2. Model 1 includes the control variables. Although all effect-coded dummy variables were included in the modeling, only the statistically significant
Hypothesis 1 predicts that ownership by professional investment funds will exhibit a positive relationship with international diversification. The results presented in model 2 support Hypothesis 1. Hypothesis 2 suggests that pension fund ownership is positively related to international diversification. The positive and statistically significant relationship between pension funds and international diversification supports the hypothesis. The change in the amount of explained variance associated with the addition of the “main effects” to model 1 was statistically significant ($F = 10.97, p < .001$).

Models 3–6 were used to estimate the impact of regressing international diversification on each of the proposed interactions individually. Hypothesis 3 suggests that adequate representation of outside directors will positively moderate the relationship between professional investment fund ownership of a company and its international diversification. In model 3, the interaction between professional investment funds and outside directors had a positive and statistically significant effect on international diversification, producing a positive increment in the variance explained ($F = 5.76, p < .05$). These results support Hypothesis 3. Hypothesis 4 suggests that inside director incentives will positively moderate the relationship between pension funds and international diversification. The statistically significant and positive coefficient for the interaction between pension funds and inside director incentives and the statistically significant change in the variance explained between model 4 and model 2 ($F = 6.02, p < .05$) indicates support for this hypothesis. Hypothesis 5 predicts that technological opportunity will negatively moderate the relationship between ownership by professional investment funds and international diversification. As shown in model 5, the interaction coefficient (professional investment funds multiplied by technological opportunity) was marginally statistically

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<tr>
<td>Debt/sales ratio</td>
<td>-.12</td>
<td>-.13†</td>
<td>-.14†</td>
<td>-.14†</td>
<td>-.13†</td>
<td>-.14*</td>
<td></td>
</tr>
<tr>
<td>Firm size</td>
<td>.17*</td>
<td>.21**</td>
<td>.21**</td>
<td>.22**</td>
<td>.20**</td>
<td>.20**</td>
<td>.21**</td>
</tr>
<tr>
<td>Professional investment fund ownership</td>
<td>.21**</td>
<td>.20**</td>
<td>.21**</td>
<td>.21**</td>
<td>.21**</td>
<td>.18**</td>
<td></td>
</tr>
<tr>
<td>Pension fund ownership</td>
<td>.14*</td>
<td>.15*</td>
<td>.12†</td>
<td>.13*</td>
<td>-.07</td>
<td>-.04</td>
<td></td>
</tr>
<tr>
<td>Inside director incentives</td>
<td>.24***</td>
<td>.24**</td>
<td>.25**</td>
<td>.24**</td>
<td>.23**</td>
<td>.25**</td>
<td></td>
</tr>
<tr>
<td>Outside directors ratio</td>
<td>.12†</td>
<td>.11†</td>
<td>.11</td>
<td>.11†</td>
<td>.12†</td>
<td>.12†</td>
<td></td>
</tr>
<tr>
<td>Technological opportunity</td>
<td>.23***</td>
<td>.24***</td>
<td>.21**</td>
<td>.22***</td>
<td>.14*</td>
<td>.13†</td>
<td></td>
</tr>
<tr>
<td>Interaction terms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional investment fund ownership × outside directors ratio</td>
<td>.15*</td>
<td>.14*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pension fund ownership × inside director incentives</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Professional investment fund ownership × technological opportunity</td>
<td></td>
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<tr>
<td>Pension fund ownership × technological opportunity</td>
<td></td>
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</tbody>
</table>

Reported coefficients are standardized. $p < .10$ indicates a marginally statistically significant effect. $p < .05$ indicates a statistically significant effect. $p < .01$ indicates a strongly statistically significant effect. $p < .001$ indicates a highly statistically significant effect.
significant, providing limited support for Hypothesis 5. Hypothesis 6 suggests that technological opportunity will positively moderate the relationship between pension fund ownership and international diversification. The interaction between pension funds and technological opportunity had a positive and statistically significant effect on international diversification (see model 6). The change in the multiple squared correlation coefficient ($R^2$) with the addition of the interaction term was statistically significant ($F = 6.10, p < .05$). Therefore, the hypothesis received support. Lastly, model 7 was used to estimate the effects of all four interaction terms in one model. The combined effect of the interaction terms in model 7 was statistically significant ($F = 3.82, p < .01$), explaining variance over and above that explained by the control and direct effects alone (model 2). Consistent with the results from calculating models 3, 4, and 6, the interaction terms in model 7 were statistically significant in the expected directions.

Although the statistical significance of interaction terms in the moderated regression models provide support for the hypotheses, the examination of interaction plots presents further insights on the specific moderating effects. Following the procedures recommended by Cohen and Cohen (1983), in Figure 1a we illustrate the moderating effect of the ratio of outside directors on the relationship between professional investment funds and international diversification. The plot indicates that, in the presence of high outside board member representation, professional investment fund holdings are associated with higher levels of firm international diversification. The plot shows a smaller change in firm international diversification for professional investment funds when the outside board member representation is low. Figure 1b presents the graph showing the moderating effect of inside director incentives on the relationship between pension fund ownership and international diversification. The form of the interaction illustrates that, when inside director incentives are high, pension fund holdings are associated with higher levels of firm international diversification. Conversely, under conditions of low inside director incentives, the slope shows lower levels of firm international diversification for pension fund holdings. The form of the interaction portrayed in Figure 1c suggests that in the case of high technological opportunity, pension fund holdings are related to higher levels of international diversification. However, in firms from industries with low technological opportunity, there is a smaller, though still positive, change in international diversification for pension funds' holdings.

**DISCUSSION AND CONCLUSION**

This research showed a relationship between institutional ownership and international diversification, thereby supporting the popular corporate governance notion (e.g., Davis & Thompson, 1994; David et al., 2001; Useem, 1996) that institutional owners are increasingly interested in important firm strategies. Furthermore, the results of this study indicate that the diversification advantages provided by firms operating in foreign markets are of interest to institutional investors, because these investors may experience difficulties (for instance, restrictions to capital flows, information asymmetries) in replicating the benefits of holding a portfolio of securities originating in foreign markets (Agmon & Lessard, 1977; Harris & Ravenscraft, 1991; Shleifer & Vishny, 1997). Results of this study suggest that professional investment fund managers are interested in firm international diversification owing to the short-term, positive returns generally achieved by this strategy (Doukas & Travlos, 1988; O’Barr & Conley, 1992). We also found that pension funds are interested in international diversification; their interest is likely due to their long-term performance orientation and buy-and-hold strategy (e.g., Kochhar & David, 1996; David et al., 2001; Zahra, 1996).

Institutional investors are even more interested in a firm’s international strategy when the appropriate form of monitoring is in place through its board of directors. This relationship suggests an agency concern with international diversification. Without appropriate oversight, diversification of the employment risk can dominate international diversification decisions. Thus, managers might select certain country markets to enter or may choose modes of entry that better satisfy their needs rather than the firm’s interests. In support of these arguments, we found strong evidence that the composition and incentives of boards of directors moderate the relationship between institutional investors and international diversification. Considering the mixed findings on the role of boards of directors noted by Dalton and colleagues (1998), these results make an important contribution to the governance literature. These governance effects on international diversification extend the prior limited research in this area by revealing the specific alignment between the attitudes of separate types of owners and different board members on a distinct firm strategy. Although prior research has emphasized the differences between institutional owners in the domestic context (e.g., Bushue, 1998; Kochhar & David, 1996) and the role of boards of directors in the international context (e.g., Sanders &
Carpenter, 1998; Ellstrand et al., 2002), little research has linked these two important governance mechanisms.

This study extends understanding of agency theory by showing the potential coalition between different owners and board members in the context of international diversification. Our results showed that professional investment fund managers prefer higher levels of international diversification when outside director representation is high. These results suggest that the interests of outside board members are aligned with the shorter-term interest of professional investment funds. Alternatively, the results of this study show that pension fund managers prefer international diversification when inside director incentives are high. Our findings indicate that inside
board members’ interests are aligned with the interests of pension funds. Future research should further examine the interactive effects of these different governance mechanisms, such as ownership concentration and the board of directors.

Separate institutional owners may champion different firm strategies and thereby influence the outcome of organizational actions. The insight on the attitudes of different institutional owners toward international diversification is important for individual investors, who need to rely on the expertise of these large institutions in the international context. Better information on institutional preferences may help the clients of these funds to optimize their investments. The findings regarding boards of directors’ role in international expansion are of interest to fund managers as well. While these managers may prefer a balance between outside and inside board members, the interest of pension fund managers in international strategies may be better represented by boards with a preponderance of inside members with appropriate incentives, such as equity and stock options. Even more importantly, the managers of firms need to know more about the preferences of their owners. For example, despite their strong initial support, professional investment funds may lose interest in international growth opportunities and pressure a firm’s management to change its strategies or divest their firm’s foreign equity stake. If the management of a firm wants to pursue a long-term strategy of foreign direct investment, they might be able to gain support from large pension fund owners (using their investor relations departments, for instance). Research is needed to understand how corporations seek investor constituents that support key corporate strategies such as international diversification.

We also examined technological opportunity, an important variable for domestic (e.g., Baysinger & Hoskisson, 1989; Kelm et al., 1995; Sharma & Kesner, 1996) and international (e.g., Almor & Hirsch, 1995; Buckley & Dunning, 1976; Kobrin, 1991) strategies. We found support for the interactive effects of institutional ownership and technological opportunity on international diversification. In the context of high technological opportunity, the relationship between investment fund managers and international diversification is marginal. On the other hand, results of this study suggest that pension fund managers prefer greater international diversification in industries with higher technological opportunity. The investment strategy of these institutional investors appears to facilitate the innovative firms’ need to enter foreign markets in order to allocate R&D costs over a longer period of time and thereby benefit from their patents and from technology transfer (Harris & Ravenscraft, 1991; Kobrin, 1991). This extension is important, as past research has not considered the stakes of owners in foreign direct investment in R&D-intensive industries. For instance, though many firms in these industries desire to internationalize, they may receive little support from some owners. Thus, the owners’ different attitudes toward international diversification provide additional evidence beyond the conventional wisdom, on why some high-technology firms are unable to make successful transitions to operating in international markets. These findings suggest that managers of firms in high-technology industries must effectively communicate their goals and the rationales for them in order to secure the support of long-term institutional investors. Additionally, these firms’ top managers could give their investor relation departments the assignment of identifying and recruiting owners that more effectively match the firms’ strategic orientations toward such areas as international diversification.

International diversification involves the complex allocation of multiple resources (including, for instance, financial and human capital). Consistent with the recommendations of prior studies (e.g., Sullivan, 1994), we used a multidimensional, popular, and broad measure of international diversification. However, the various modes of entering foreign markets, which include exporting, licensing, acquisitions, strategic alliances, and “greenfield” ventures, have different risk properties, costs, and benefits for the owners of a firm. Examining these entry modes could provide additional evidence on the interests of different institutional investors in the context of an international diversification strategy. For example, one would expect a stronger interest in exporting, licensing, and international joint ventures on the part of professional investment funds because these market entry modes take less time and investment to implement and can be more easily evaluated by outside directors. Pension funds, on the other hand, may be supportive of acquisitions and greenfield ventures, which are longer-term efforts that often require coordination by inside managers. The implications of different

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2 To examine this issue further, we tested the effects on international diversification of two interactions: inside board member incentives with pension fund ownership and outside board member ratio with professional investment fund ownership. However, neither of these interaction effects was statistically significant.
entry modes are even more important when their suitability for entry by R&D-intensive firms is considered.

Another important extension could be made by examining the implications of the different international strategies available to firms. For example, responding to the different pressures of global integration and national responsiveness, firms may follow global, multidomestic, or transnational strategies (Bartlett & Ghoshal, 1989; Dunning, 1993). A high level of corporate control in global strategy may allow a firm to benefit from its domestic capabilities and ensure the success of international diversification without its having a thorough knowledge of local market conditions in foreign countries. Thus, managers of professional investment funds may favor investing in internationally diversified firms that follow a global strategy. However, they might hesitate to support firms that seek to build global efficiency in the first place. Multidomestic strategy, on the other hand, may provide competitive advantage via tailoring products and services to international differences in customs, customer preferences, and regulations. The different owners of a firm may not equally prefer these variations because of the increased risks and organizational complexity. While pension funds are more likely to support firms following a multidomestic strategy than are professional investment funds, these institutional holders will likely prefer that the firms combine national responsiveness with global efficiency over time. Therefore, the interest of pension fund owners appears to be in line with a transnational strategy, which attempts to benefit from both integration and responsiveness (Bartlett & Ghoshal, 1989).

This study examined the effect of institutional investors on international diversification in a sample of large United States–based firms. Firms with home bases in other countries might have different motivations to enter foreign markets. Institutional infrastructures, domestic market structures, and local governance mechanisms may all influence the propensity to internationalize. These differences in home country environment might also affect the interests and involvement of firm owners in international diversification. Thus, our findings need replication in firms with different country home bases; research designs reflecting the differences in corporate governance approaches across countries are especially important (e.g., Norburn et al., 2000).

In summary, the present findings add value to scholars’ knowledge of corporate governance, indicating that institutional investors do influence international diversification. The present study suggests that different types of institutional investors are heterogeneous in their preferences for international diversification. Furthermore, this study shows that boards of directors and the levels of industry technological opportunity moderate the effects of different institutional investor types on international diversification. These findings have important implications for corporate governance and highlight the need for further research on the role of governance in firm internationalization.

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