

INSTITUTIONAL INVESTORS AND FIRM INNOVATION: A TEST OF COMPETING HYPOTHESES

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There is much debate about the effect of institutional investors on firm innovation. This paper tests three competing hypotheses by including differences among institutions in their ability to influence firms. Results using an outcome-based measure of innovation indicate that institutions do not foster short-term orientation; instead they may influence firms to increase innovation.

Despite the increasing presence of institutional investors in the capital market (Brancato and Gaughan, 1991; Davis and Thompson, 1994), there is considerable controversy regarding their effect on firm innovation. Researchers in this area have presented three mutually exclusive viewpoints. Some believe that these investors look mainly for short-term gains from their equity investments (Drucker, 1986; Mitroff, 1987). The resulting 'myopia' has often been blamed for being one of the primary causes of the decline in the competitiveness of U.S. firms in the global economy (Graves, 1988; Graves and Waddock, 1990; Hill, Hitt and Hoskisson, 1988; Porter, 1992). Other researchers suggest that institutions are good investors and look for long-term gains from their investments. That is, institutions are able to seek out and invest in firms that are inherently more innovative (Allen,

1993a, 1993b; Jarrell, Lehn, and Marr, 1985; Jensen, 1988). Finally, a third viewpoint proposes that the large holdings of these investors provide them with an incentive to monitor firm managers and influence firm actions, if necessary (Aoki, 1984; Taylor, 1990; Useem, 1993). Thus, institutional investors may influence firms to increase innovation, rather than simply invest in firms that are better innovators.

While the anecdotal evidence appears to support all three viewpoints (Dobrzynski *et al.*, 1986; Hector, 1988; Taylor, 1990), systematic empirical evidence is scant and presents contradictory results. In this study, we develop competing hypotheses to test the validity of the three viewpoints on the behavior of institutional investors. By examining evidence regarding the effects of these investors on corporate innovation outcomes, and by including differences among institutions in their ability to influence these outcomes, we are able to differentiate among the competing hypotheses.

Key words: institutional investors; innovation; corporate governance

INSTITUTIONAL INVESTORS AND INNOVATION

According to the myopic viewpoint, institutional investors value short-term benefits over long-term gains. These investors may lack access to proprietary firm-specific information, and therefore find it difficult to evaluate the long-term value of a firm (Porter, 1992). Instead, they may focus on performance measures, like current earnings, that are easily quantifiable. Thus, they behave like arbitragers to 'churn' or frequently turn over their portfolio of stocks in order to capitalize on all possible short-term gains (Shleifer and Vishny, 1990). Also, prudence would dictate that, rather than risk getting tied to losing stocks, fund managers of these institutions would offload them and switch to equities of better-performing firms (Hill *et al.*, 1988). Furthermore, fund managers tend to be evaluated quarterly and are under pressure to report higher earnings during that time frame (Graves and Waddock, 1990). Offloading of poorly performing stocks is particularly high during the end of a quarter (Lakonishok *et al.*, 1991). Thus, institutional fund managers may not be able to afford longer horizons in their investment decisions (Drucker, 1986; Mitroff, 1987; Porter, 1992). These arguments suggest that, rather than look for long-term value creation from their investments, institutions may prefer to profit from portfolio shuffling when there are increases or decreases in stock prices, even if those changes are temporary (Loescher, 1984).

An unintended consequence of short-term investment horizons of institutions is that it may lead to a short-term orientation on the part of firm managers. If institutions dispose of their large holdings in a poorly performing firm, the stock price is likely to decline further, making the firm an attractive takeover target for potential acquirers (Jarrell, Brickley, and Netter, 1988; Shleifer and Vishny, 1990). Moreover, institutions may sell their holdings in case of a takeover offer with a premium, even though the firm may be performing well (Sigler, 1989). In such a scenario, control passes easily to the acquiring firm as institutions generally hold large amounts of equity. Managers like to minimize possible takeover threats as they are likely to lose their jobs after the event (Gilson, 1989; Walsh, 1989). Thus, to maintain high stock prices, firm managers

may be forced to cut back on risky long-term investments, such as expenditures on innovative activities (Hayes and Abernathy, 1980). According to the '*myopic investor*' viewpoint of institutions, therefore, institutional holding and firm innovation will be negatively correlated.

Critics of the above viewpoint argue that if institutions do not prefer firms that invest for long-term gains (albeit suffering short-term price depression), these investors are systematically undervaluing expected earnings (Jarrell *et al.*, 1985; Jensen, 1988). Rational shareholders, however, value firms based on all public information, and do not necessarily disapprove of expenditures that are likely to improve firm value in the long term. Large shareholders tend to evaluate their alternatives more carefully and, hence, make better investment decisions (Aoki, 1984). Because of their increased wealth, institutional investors obtain scale economies in the evaluation of investments, and thus possess better knowledge about the market than individual investors (Black, 1992). That is, they have incentives to carry out a thorough evaluation of possible long-term benefits, rather than gain from short-term fluctuations in price. If this is the case, firm managers realize that there is no danger of institutions dumping the stock just on the basis of transient changes in stock prices and, hence, are not afraid to make investments in innovative activities. The viewpoint that institutional investors will process information more thoroughly before making investment decisions, and thus make better judgments, will be referred to as the '*superior investor*' hypothesis. This viewpoint is directly opposed to the myopic investment hypothesis which imputes irrational behavior on the part of institutions. According to the superior investor hypothesis, the association between institutional holding and firm innovation will be positive.

The growing dominance of institutions in the capital markets is reflected in the increasing wealth and the concentration of this wealth in fewer institutions (Brancato and Gaughan, 1991). One consequence is that institutions need to diversify their portfolios by owning equity in many firms. However, they may be faced with two problems if they wish to adopt an active portfolio management strategy. First, the sale of large blocks of equity often leads to substantial drops in the stock price, potentially making the sale unattractive (Aoki, 1984). In other words,

institutional investors are no longer 'atomistic' in nature, and their actions affect the market. Also, even if they do manage to liquidate their investment in a firm, new profitable opportunities will be scarce as the institution's portfolio already tends to be well diversified (Gilson and Kraakman, 1991).

The potential loss of value and the inability to find new investments make 'exit' from an equity position problematical (Hirschman, 1970). Under this scenario, institutions may be motivated to use their 'voice' to influence managerial decisions with the motivation of increasing firm value. This third viewpoint, that institutions are closely involved in monitoring firm managers and the strategic management of the firm, is referred to as the '*active investor*' hypothesis (Jensen, 1991, 1993). Since active investors cannot easily divest their holdings in the short run, they should be interested in, and even encourage, investments by the firm that are potentially beneficial in the long run. Therefore, according to the active investor hypothesis, institutional holding and firm innovation will also be positively correlated.

To summarize, the myopic investor hypothesis argues that institutional investors look for short-term gains from their investments, which further leads to a short-term horizon for firms. The superior investor hypothesis implies that institutions are able to better pick firms with higher value potential, as defined by greater innovative ability. Finally, the active investor hypothesis suggests that institutions do not necessarily pick firms with demonstrated higher innovation for their portfolio, but rather actively influence these firms to increase innovation.

Empirical evidence

Although much has been written about the effect of institutional owners on firm innovation, only a few studies have systematically studied this relationship. Graves (1988) found a negative relationship between institutional holding and R&D intensity,¹ supporting the myopic behavior hypothesis. However, other studies have found a positive relationship between institutional ownership and R&D intensity (Baysinger, Kosnik

and Turk, 1991; Jarrell *et al.*, 1985; Hansen and Hill, 1991).

Barring Graves' study, therefore, all the other studies favor rejection of the myopic viewpoint. Whether institutions are superior investors or active investors, however, is still not clear. Jarrell *et al.* (1985) found that change in institutional ownership was not associated with change in R&D spending, implying that institutions do not influence firm innovation. Rather, their evidence suggests that these investors are able to invest in firms that are more innovative by nature and, therefore, are superior investors. Hansen and Hill (1991:12) suggested that the positive association found in their study may provide support for the superior investor or active investor hypotheses. It should be noted, however, that the relationship was only marginally statistically significant.

STUDY DESIGN AND HYPOTHESES

The purpose of this paper is to discriminate between the myopic investor, superior investor, and active investor hypotheses about the behavior of institutional investors. We build on prior research in two ways. All previous studies examining the impact of institutional investors have measured firm innovation through R&D expenditures. However, this measure does not indicate whether there are truly any differences in innovation across firms. In other words, it is possible that two firms may have the same intensity of R&D expenditures, yet be different in their innovative ability because resources are not efficiently managed (Hitt *et al.*, 1991). Also, managers may prefer to retain surplus funds within the firm rather than distributing them to shareholders (Grabowski and Mueller, 1972). Higher R&D expenditures in these situations would probably indicate a greater level of agency costs (Jensen and Meckling, 1976), and not necessarily better innovation. The present study improves on previous research by examining one of the actual outcomes of innovation, i.e., new products developed by the firm.

Second, the study also examines differences among institutions in order to understand their behavior better. All studies on institutional ownership and innovation, and most studies on institutions in general, view them as homogeneous entities. The term 'institutional investor', however,

¹ R&D intensity has been used as an indicator of firm innovation. It is typically measured as firm R&D expenditure per employee, or per unit of sales.

includes a variety of organizations such as insurance companies, pension funds, and mutual funds, among others (Roe, 1990). It is quite likely that there are differences in their motives and behavior arising from differences in their goals and objectives (Black, 1992). Specifically, drawing on a systematic taxonomy of institutional investors (Brickley, Lease, and Smith, 1988), this study examines how differences in their ability to influence firms may vary their effect on firm innovation. We use these differences to develop hypotheses that can be used to differentiate among the three competing hypotheses regarding the effect of institutions on new products.

If institutional investors look for short-term gains, they would be willing to sell off their shares when they can get a premium on existing market price, as in a takeover. To avoid possible takeover threats, managers are motivated to maintain a high stock price. Thus, they would cut back on spending that can lower price in the short run, such as expenditure on research. The consequence is that the firm will rely on its existing products to compete in the marketplace, and will not develop new products. The myopic investor hypothesis, therefore, predicts that:

Hypothesis 1: Institutional ownership is negatively associated with the rate of new product development.

A negative association suggests that institutional ownership leads to decreased investment for long-term gains, supporting the view that they are myopic investors. If Hypothesis 1 is rejected, however, it is possible that either one of the other two viewpoints may be valid. A positive association could imply that either institutions are able to identify firms that are more innovative and have a better chance of achieving competitive advantage in their product markets (superior investors), or that institutions are actively influencing firms to become more innovative (active investors). It is possible, however, that different types of institutions have different effects on firms.

To distinguish between the superior investor and active investor hypotheses, we examine differences among various types of institutions based on their ability to influence firm actions. All institutions have an investment relationship with a firm in which they hold equity. However, some institutions may also have a business

relationship with these firms. That is, some of the economic activity of the institutions may be arising from relationships with the firm. The dual activities of investment and business relationships can create a conflict of interest for the institution (Heard and Sherman, 1987). Brickley *et al.* (1988) have argued that an institution's ability to influence the firm may be limited by the extent to which it depends on the firm for business. Based on the nature of business relationships, they classified institutions into three categories.

Some institutions may have ongoing business relations with the firms in which they invest. For these institutions, the power gained from their ownership stake (Finkelstein, 1992; Zald, 1969) may be negated somewhat by their dependence on the firm for business activity (Cook, 1977; Levine and White, 1961). Institutions that are seeking to maintain an amicable business relationship may be hesitant to attempt to influence managerial actions. If these institutions take an activist stance with respect to the firm, they may be penalized by the firm via the withdrawal of business. As these types of institutions are susceptible to managerial influence, Brickley *et al.* (1988) termed them as pressure-sensitive. Pressure-sensitive institutions include banks, insurance companies, and nonbank trusts.

Pressure-resistant institutions, on the other hand, have no business relationship with the firm. As they have only an investment relationship, a conflict of interest is unlikely. This suggests that these institutions are more able to exercise their voice over firm actions, if they wish to do so. Included in this category are public pension funds, mutual funds, and endowments and foundations (Brickley *et al.*, 1988).

The relationship for a third group of institutions is not clear. Although these institutions may not have any business relationship, they may still be reluctant to attempt to influence firm actions. For example, a corporate pension fund does not depend on a firm for its current or future business. However, it may be unwilling to behave actively since its sponsoring corporation may not like to be the target of similar activism by its institutional owners. Also, for institutions with small holdings in a firm, it may not be worthwhile to expend the time and money required on monitoring and subsequent influence. They can generally divest their holdings without much fear

of loss in value. Brickley *et al.* (1988) referred to this group of institutions as pressure indeterminate as their motives and actions are not clearly defined. Included in this category are corporate pension funds, brokerage houses, investment counseling firms, and institutions with small holdings in the firm.

This discussion of differences among institutions suggests that, even if they wish to do so, not all institutions may be able to actively influence firms in which they have an ownership stake. Brickley *et al.* (1988) found that, when voting on antitakeover amendments, pressure-resistant institutions were more likely to oppose firm managers than pressure-sensitive institutions. Therefore, pressure-resistant institutions are also likely to have a stronger influence on innovation. If Hypothesis 1 is rejected—i.e., the myopic investor viewpoint is not supported—stitutions are likely to be either superior investors or active investors. If institutions are active investors and influence the firm to become more innovative, the effect will be stronger for pressure-resistant institutions. Thus, the following hypothesis can be developed:

Hypothesis 2: Pressure-resistant institutions are more positively associated with the rate of new product development than are pressure-sensitive institutions.

Hypothesis 2 permits us to distinguish between the superior investor and active investor hypotheses. The superior investor hypothesis suggests that institutions do not actively influence firm actions, but seek out and invest in firms that are more innovative by nature. There is no *a priori* reason to believe that the investment skills of the pressure-resistant and pressure-sensitive institutions will be different. Thus, according to the superior investor viewpoint, there is not likely to be any difference between the two in their association with firm innovation. However, the active investor hypothesis suggest that differences in the ability of the two types of institutions to influence outcomes will be reflected in firm innovation. Therefore, the active investor hypothesis will be supported if Hypothesis 2 is supported. Otherwise, support is provided for the superior investor hypothesis.

Figure 1 summarizes our study design. We first examine, via Hypothesis 1, the myopic investor

viewpoint. If Hypothesis 1 is not supported, Hypothesis 2 is used to distinguish between the superior investor and active investor hypotheses. Support for Hypothesis 2 would indicate that the active investor hypothesis better explains institutions' behavior. Failing that support, the superior investor hypothesis is accepted.

METHODS

Sample

The sample utilized in this study consisted of 135 firms traded on the New York Stock Exchange, American Exchange, or NASDAQ. Selection of public firms is necessary because the focus is on the effects of equity holdings by institutional investors. Data are also more readily available for these firms. The sample was restricted to firms in the manufacturing sector. However, similar to Jarrell *et al.* (1985) and Baysinger *et al.* (1991), the sample included firms in several industries. This provides greater validity to the results and ensures that results are not driven by the selection of a few industries. The study was cross-sectional in nature with data on all the independent and control variables obtained for 1989.

Dependent variable

This study focuses on the effects of institutional investors on firm innovation. As discussed earlier, previous research has used R&D intensity to measure innovative ability. A potential shortcoming of this measure is that it does not capture the outcomes of innovation. In other words, the assumption is that firms spending more on R&D are likely to be more innovative. A more direct measure of innovation is required to avoid this shortcoming (Acs and Audretsch, 1987). We chose the number of new products developed by the firm as our dependent variable. A higher number of new products reflects superior innovative ability, and has been found to be associated with increased firm value (Chaney and Devinney, 1992; Chaney, Devinney and Winer, 1991). Data were obtained from *Diaglo's PTS New Product Announcements (PTS NPA)* data base. This data base provides the full text of news releases issued by firms and their authorized representatives. These announcements include new products and services, new processes, new technologies, and

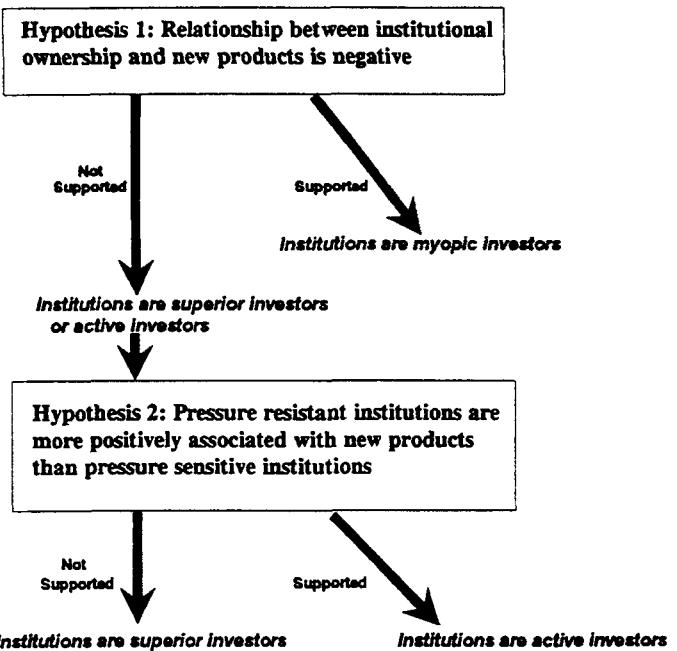


Figure 1. Study design to test competing hypotheses about institutional investors

other similar events concerned with new products. As it may take some time before the effect of institutional ownership is reflected in the innovative ability, the dependent variable was calculated as the total number of new product announcements in the 1990-92 period.

Independent variables

Based on Section 13(f) filings, the Compact Disclosure data base, produced by Disclosure, Inc., provides detailed information on institutional ownership of firms. Data on the equity holdings of each institutional investor in a firm are provided. The ratio of shares held by all institutions to the total number of shares outstanding was used to determine *total institutional ownership*.

Adopting the procedure described in Brickley *et al.* (1988), institutions were classified into three categories. Institutions with small holdings, i.e., less than 1 percent, were classified as pressure indeterminate. For the rest, we used *Money Market Directory* to identify the type of institution. This classification was cross-verified with *Moody's Bank and Finance Manual* and *Nelson's Directory of Investment Managers*. A total of 12,813 institutional investors were classi-

fied in this process. For each category, the proportion of ownership in 1989 was determined. Thirty-four institutions, with average holding of 3.4 percent, remained unclassified, and were included in the pressure-indeterminate category. Thus, the classification procedure adopted was:

1. *Pressure-resistant institutions*: public pension funds, mutual funds, and endowments and foundations (owning at least 1 percent of a firm's equity);
2. *Pressure-sensitive institutions*: insurance companies, banks, and nonbank trusts (owning at least 1 percent of a firm's equity);
3. *Pressure-indeterminate institutions*: corporate pension funds, brokerage houses, investment counsel firms, unidentified institutions (owning at least 1 percent of a firm's equity), and institutions owning less than 1 percent of a firm's equity.

Control variables

R&D intensity

We wanted to isolate the effect of institutional ownership on a firm's innovative ability, taking

into account the spending on R&D activities. Therefore, we used R&D intensity, measured by R&D expenditure per employee, as a control variable. Data were obtained from COMPUSTAT tapes.

Diversification

Previous research suggests that the diversification strategy of the firm may impact its investment in long-term projects. Greater diversification, especially in unrelated businesses, may lead to the use of tight financial controls, further leading to short-run profit maximization (Hayes and Abernathy, 1980; Hoskisson and Hitt, 1988). Therefore, the effects of diversification were controlled for by using the entropy measure (Jacquemin and Berry, 1979; Palepu, 1985). This measure takes into account the number of segments in which a firm operates and the relative importance of each segment. This measure possesses good reliability and validity (Chatterjee and Blocher, 1992; Hoskisson *et al.*, 1993). The two components of this measure, measuring related diversification and unrelated diversification, were used. Data were obtained from the COMPUSTAT *Business Segment Tapes*.

Size

Only large firms may have the incentives and ability to develop new products (Scherer, 1984). Thus, firm sales obtained from COMPUSTAT were also introduced in the model. As is common, a logarithmic transformation was used.

Leverage

Highly leveraged firms may not be in a position to fund long-term projects due to the lack of available capital (Baysinger and Hoskisson, 1989). Thus, the firm's debt-to-equity ratio, obtained from COMPUSTAT, was used as a control variable.

Liquidity

A firm's short-term resources may also affect available funding (Hansen and Hill, 1991). Therefore, the current ratio (current assets/current liabilities) was also used in the model. Data were obtained from COMPUSTAT tapes.

Insider ownership

Insiders with ownership stakes may like to see an increase in firm value, and, therefore, favor long-term investments (Hill and Snell, 1989). Thus, the proportion of shares held by managers and directors in 1989, obtained from Compact Disclosure, was also used as a control variable.

Industry

We controlled for possible industry effects by using dummy variables at the two-digit SIC code level (Dess, Ireland, and Hitt, 1990; Keats and Hitt, 1988).

RESULTS

Table 1 presents the descriptive statistics of the dependent variable, independent variables, and control variables used in this study. The magnitude of the correlations between the independent variables do not appear to be cause for concern about problems arising from multicollinearity. In any case, we standardized all variables in order to decrease the potential for such problems² (Aiken and West, 1991).

One of the problems faced in studies involving R&D expenditures is the high proportion of missing data in COMPUSTAT (San Miguel, 1977). In our sample, this item was not available for a substantial number of firms (36). Therefore, although R&D intensity is an important control variable, we also present results excluding it from the model.

Table 2 presents the results of regression analyses used to test Hypothesis 1. Model 1 examines the effect of institutional ownership on new products, after controlling for diversification, size, leverage, liquidity, insider ownership, and industry effects. Model 2 is similar, except that R&D intensity is included in the model.

The myopic investor hypothesis predicted that there would be a negative association between institutional ownership and new products. The coefficient of total institutional holding is not statistically significant in either model. Hypothesis 1 is, therefore, not supported, suggesting that

² Results were identical with nonstandardized data.

Table 1. Means, standard deviations, and intercorrelations of variables in study^a

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1. New products	8.778	18.161											
2. Total institutional ownership	0.271	0.149	0.090										
3. Pressure-resistant ownership	0.044	0.043	0.195*	0.486**									
4. Pressure-indeterminate ownership	0.138	0.099	0.033	0.772**	0.159†								
5. Pressure-sensitive ownership	0.088	0.079	0.022	0.655**	0.178*	0.113							
6. R&D intensity	4.460	5.148	0.287**	0.097	-0.019	0.098	0.063						
7. Current ratio	2.418	1.319	-0.026*	0.174*	0.000	0.190*	0.090	0.053					
8. Leverage	0.331	0.285	-0.078	-0.167†	-0.032	-0.089*	-0.189*	-0.261**	-0.308**				
9. Size	6.274	1.580	0.204	-0.056	0.123	0.189*	0.041	0.118	-0.267*	0.074			
10. Unrelated diversification	0.279	0.417	-0.103	0.022	0.115	-0.059	0.053	-0.247*	-0.098	0.120	0.358**		
11. Related diversification	0.279	0.314	0.024	-0.088	0.072	0.030	-0.073	-0.123	-0.215*	-0.001	0.382**	-0.022*	
12. Insider ownership	0.145	0.173	-0.191*	-0.222*	-0.267*	-0.0361	-0.196*	-0.173	-0.123	-0.073	-0.112	-0.112	-0.157†

*N = 135, except for R&D intensity, where N = 99

†p < 0.10, *p < 0.05, **p < 0.01

Table 2. Regression results of total institutional holding on new products
Dependent variable = number of new product announcements

Independent variables	Estimated coefficients	
	Model 1	Model 2
Intercept	-0.254 (-0.27)	-0.157 (-0.15)
Total institutional ownership	0.023 (0.25)	-0.025 (-0.20)
R&D intensity		0.091 (0.67)
Size	0.312** (2.86)	0.402* (2.53)
Current ratio	-0.014 (-0.15)	0.008 (0.05)
Leverage	-0.059 (-0.65)	-0.111 (-0.95)
Unrelated diversification	-0.159* (-1.72)	-0.154 (-1.17)
Related diversification	-0.032 (-0.35)	-0.020 (-0.17)
Insider ownership	-0.134 (-1.36)	-0.076 (-0.51)
<i>N</i>	135	99
Model <i>F</i>	2.21**	1.99*
<i>R</i> ²	0.358	0.404

Model 2 is identical to Model 1, except for the inclusion of R&D intensity.

Figures in parentheses represent *T*-statistics; $\dagger p < 0.10$; $*p < 0.05$; $**p < 0.01$.

the presence of institutional investors does not foster short-term behavior on the part of firm managers.

Hypothesis 2 is used to distinguish between the superior investor and active investor hypotheses. Table 3 presents the regression results examining the effects of different types of institutions on firm innovation. Model 3 excludes R&D intensity and Model 4 includes it in the regression model. The coefficient on pressure-resistant institutions is positive and statistically significant in both models, although the level of significance is weaker in Model 4. The coefficient on pressure-sensitive institutions, however, is not significant in either model. Hypothesis 2 had proposed that pressure-resistant institutions will have a more positive influence on firm innovation than pressure-sensitive institutions. Thus, the results support Hypothesis 2.

Table 3. Regression results of different categories of institutions on new products
Dependent variable = Number of new product announcements

Independent variables	Estimated coefficients	
	Model 3	Model 4
Intercept	-0.314 (-0.34)	-0.189 (-0.18)
Pressure-resistant ownership	0.175* (1.94)	0.198† (1.68)
Pressure-sensitive ownership	-0.040 (-0.45)	-0.051 (-0.46)
Pressure-indeterminate ownership	-0.043 (-0.48)	-0.099 (-0.78)
R&D intensity		0.101 (0.75)
Size	0.306** (2.82)	0.410* (2.60)
Current ratio	-0.002 (-0.02)	0.044 (0.27)
Leverage	-0.066 (-0.73)	-0.108 (-0.93)
Unrelated diversification	-0.192* (-1.95)	-0.207 (-1.54)
Related diversification	-0.048 (-0.52)	-0.048 (-0.41)
Insider ownership	-0.104 (-1.05)	-0.010 (-0.07)
<i>N</i>	135	99
Model <i>F</i>	2.22**	2.00*
<i>R</i> ²	0.381	0.431

Model 3 is identical to Model 4, except for the inclusion of R&D intensity.

Figures in parentheses represent *T*-statistics; $\dagger p < 0.10$; $*p < 0.05$; $**p < 0.01$.

These results suggest that institutions resistant to managerial influence are associated with greater innovation in firms. Institutions that are susceptible to that influence, however, exhibit no such association. Thus, the results of our study provide support for the active investor hypothesis of institutional owners, and favor rejection of the superior investor hypothesis.

DISCUSSION AND CONCLUSION

This study examined three hypotheses regarding the effect of institutional ownership of firm

innovation. Previous research in this area has failed to distinguish between the three mutually exclusive viewpoints that institutional investors are myopic in nature, are superior investors, or actively influence the firm. By examining differences among institutions, we were able to design a study that clearly differentiated among these competing hypotheses. Our results provide evidence in support of the active investor hypothesis. Moreover, this study improved upon previous research by examining specific outcomes of innovation: new products developed by the firm.

The results indicate that the myopic investor hypothesis is not valid. Institutions apparently do not invest for the short term, rather they look for long-term benefits from their investments in the equity of a firm. This implies that the theoretical bases of the myopic investor viewpoint may need to be reexamined. Previous research suggests that firms with higher R&D expenditures are not necessarily more vulnerable to takeovers. In fact, most acquisitions are targeted towards firms that are less R&D intensive (Jarrell *et al.*, 1988). Therefore, the argument that the presence of institutional investors motivates managers to cut R&D spending to decrease the threat of takeover may be suspect. In fact, Davis and Stout (1992) found that institutional investors may actually reduce the chances of takeovers of firms in which they invest.

Our findings also reject the superior investor hypothesis. Institutions may not be any better at evaluating investments than other investors. Previous findings suggest that the investment portfolios of institutions do not perform better than market proxies like the S&P 500. If anything, the returns may be lower (Brancato, 1989). Institutions appear to have recognized that they cannot outperform the market by relying on investment strategies; instead, they often choose indexing strategies (O'Barr and Conley, 1992). In indexing, stocks are selected because they belong to a selected market index; not on the basis of an evaluation of their long-term returns. Thus, institutional investors construct their portfolio of stocks in a manner as to replicate a market index. The observed trend towards the adoption of indexing is consistent with the idea that institutions are not superior investors.

From our study, it appears that institutions with large stakes in firms get 'locked into' their

investments. As institutional investors possess the required ability and resources, they influence managers to increase firm value by improving its competitive position. The result is a greater number of new products, even after controlling for spending on R&D. Not all institutions, however, can affect firm actions. Institutions that have business relationships with the firm are limited in the extent to which they can influence strategies, and have no effect on innovation. Institutions that are not faced with this conflict can and do affect firm innovation.

Our study has several implications from a public policy perspective. The popular belief that institutional investors have a negative effect on firm innovation (Porter, 1992) appears to be misfounded. In fact, the evidence suggests that these investors can potentially act as efficient governance devices (Jensen, 1993; Taylor, 1990). Prominent investors like Warren Buffet have recommended that institutions should be taxed on gains from stocks held less than a year to force them to hold shares for a longer duration (Lowenstein, 1988). The evidence from this study suggests that such regulations may not be necessary. Instead, it may be worthwhile to consider relaxing the proxy rules and other regulations that have made it difficult for institutions to influence managers (Black, 1992; Roe, 1990). It may also be necessary for policy makers to address the issue of conflict of interest that prevents institutional managers from exercising their influence and, hence, stops them from fully exercising their fiduciary responsibilities.

While it is evident from the results of this study that large ownership stakes provide institutions the incentive to exercise their 'voice' to influence firms, there is little research existing on the processes by which they do so. Increasing activism in targeting poorly performing firms may have given institutional investors power over managers (Davis and Thompson, 1994). Perhaps, institutions are affecting corporate governance in firms through issues such as the elimination of antitakeover protection devices, establishment of shareholder advisory committees, and the appointment of independent directors (Gilson and Kraakman, 1991). Future research is likely to benefit from a systematic examination of the processes by which institutions influence managerial actions and strategic outcomes and, ultimately, performance.

Previous research on institutions has generally treated them as homogeneous entities. However, institutional investors comprise a variety of organizations. We have examined differences among institutions with respect to their ability to influence firms. It is likely that there are other important dimensions of differences among institutions as well (Stearns and Mizruchi, 1993). Recognition of these differences in research may provide a better understanding of their behavior, such as their impact on corporate strategy.

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