

THE RELATIVE IMPORTANCE OF PSYCHOLOGICAL VERSUS PECUNIARY APPROACHES TO ESTABLISHING AN OWNERSHIP CULTURE

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ABSTRACT

This study used dominance analysis to examine the relative importance of psychological versus pecuniary approaches to the development of employee ownership attitudes and behaviors. In a sample of 409 non-unionized employees from a commercial real estate firm, we found that perceptions of information and control (i.e., psychological ownership) had a much stronger impact on ownership-related outcomes than did voluntary investment in company stock (i.e., pecuniary ownership), as hypothesized. These findings are consistent with the predictions of the employee ownership literature, suggesting that ownership culture initiatives should be directed at increasing employees' perceptions of information and control.

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Employee stock ownership has been a fixture in the US workplace since the 1970s (Blasi, Conte, & Kruse, 1996). Originally developed to "bridge the divide between labor and management" (Blasi, Kruse, Sesil, & Kroumouva, 2003), employee shareholding became an integral part of the participative management movement in industrial relations (Katz & Kochan, 2004). Despite initial skepticism from the labor movement (e.g., stock ownership as a means of reducing wages; Blasi, 1988), a stream of empirical research has shown that employee stock ownership can lead to improved firm performance and employee attitudes (e.g., Hammer & Stern, 1980; Kruse, 2002; Kruse & Blasi, 1997). Over the past 30 years, new types of ownership have proliferated, dramatically expanding the scope and reach of employee stockholding to include both union and non-unionized employees in a variety of industries and companies.

Perhaps the most sweeping employee stock ownership-related trend in the workplace today involves the voluntary investment of a portion of employees' out-of-pocket withholdings in their own company's stock via 401(k) plans (Blasi et al., 2003). Currently being the single most common type of retirement plan offered by employers (Employee Benefit Research Institute, 2006), 401(k) plans are tax-sheltered retirement savings plans that enable employees to voluntarily withhold a certain percentage of their take-home pay to invest in a number of different types of securities, including company stock, outside mutual funds, or savings bonds (Milkovich & Newman, 2005). Two things are noteworthy about this trend. First, research indicates that many Americans are choosing to direct a substantial portion of their 401(k) withholdings to the purchase of company stock. For example, a study by the National Association of Securities Dealers found that approximately 8 million Americans have more than 50% of their 401(k) withholdings tied up in their own company's stock (Spors, 2005). Second, such plans are considered "buying ownership plans," because their defining characteristic is that they enable employees to make voluntary, out-of-pocket investments in company stock (Blasi et al., 2003). These differ from more widely researched types of ownership plans known as "receiving ownership plans" (e.g., Employee Stock Ownership Plans and Broad Based Stock Option Plans), in which employees receive shares of stock from the employer, with no out-of-pocket investment (Blasi et al., 2003). The result of this trend is an unprecedented number of employees who are voluntary investors (i.e., stockholders) in the very companies that employ them (Blasi et al., 2003; Rodrick, 2001). Despite this, however, very little empirical research has examined the impact of voluntary investment in company stock on employee ownership attitudes (Wagner, Parker, & Christiansen, 2003).

In particular, we know very little about the extent to which voluntary stock acquisition through 401(k) plans makes employees feel and act like owners.

Much has been written recently about the virtues of helping employees act and feel like owners of the company. For example, scholars at the National Center for Employee Ownership recently wrote: "[In] an ownership culture, employees' interests are aligned with the company's. The result is a workforce that's loyal, cooperative, and willing to go above and beyond to help make the organization successful" (Rosen, Case, & Staubus, 2005). In support of these positive views of ownership, empirical research has established strong linkages between employee ownership perceptions and organizational commitment, retention, performance, and organizational citizenship behavior (Van Dyne & Pierce, 2004). What is missing is the empirical link between employees' voluntary investment in company stock and these ownership-related attitudes and behaviors.

Thus, the purpose of this chapter is to contribute to the scant empirical research on the impact of buying ownership plans on employee ownership outcomes. Below we discuss the rationale for why such voluntary company stock investment might be related to ownership outcomes. Importantly, we then make a distinction between this pecuniary approach to ownership and psychological approaches to ownership, leading to our primary prediction that pecuniary approaches are less important for driving ownership attitudes and behaviors than are employee perceptions of the degree to which they have control and information about the organization and their work (Pierce, Rubenfeld, & Morgan, 1991). As such, this research fills an important gap in the employee ownership literature and also provides practical insights to firms seeking to develop a culture of ownership.

PECUNIARY VERSUS PSYCHOLOGICAL APPROACHES TO FOSTERING OWNERSHIP

Previously researched approaches to helping employees act and feel like owners can be classified into two broad categories (Bakan, Suseno, Pinnington, & Money, 2004; Klein, 1987; Pierce et al., 1991; Rousseau & Shperling, 2003). The first entails financial incentives, such as Employee Stock Ownership Plans, 401(k)s, and stock option grants, that provide employees with opportunities to acquire shares of stock in the companies that employ them. We refer to this approach as a *pecuniary* approach to ownership. The second hails from the participative management literature,

which espouses the importance of engaging in practices that increase employees' perceptions that they have a voice in work decisions and access to information about company performance (Bakan et al., 2004; Hammer & Stern, 1980; Long, 1978; Rousseau & Shperling, 2003). We refer to this as a *psychological* approach to ownership.¹ Although these two approaches are not mutually exclusive in practice (indeed, many companies interested in fostering an ownership culture might use them in conjunction), they have very different theoretical underpinnings. These differences, discussed next, have implications for predictions regarding the relative importance (or effectiveness) of these approaches to fostering ownership.

Pecuniary Ownership

Buying ownership plans such as 401(k)s are attractive to employers for a number of reasons, including favorable accounting rules and tax breaks (Benartzi, Thaler, Utkus, & Sunstein, 2007). But they are also attractive because they are viewed as uniquely powerful incentives for helping employees to act and feel like owners of the company (Wagner et al., 2003). This is why employers typically offer incentives to employees to participate in buying ownership plans, such as matching contributions for 401(k) participation (Blasi et al., 2003; Profit Sharing and 401(k) Council of America, 2002). Like all pecuniary approaches to ownership, 401(k) plans are believed to motivate employees to act and feel like owners by making the value of their rewards (or retirement investment) contingent on firm's performance (Wagner et al., 2003). In short, those employees who purchase more company stock through such programs have more of a vested financial interest in how the company performs and therefore should be more likely to feel and act like owners (Klein, 1987). This is believed to be particularly true of buying ownership plans (as opposed to receiving ownership plans) because such plans require the use of employees' personal savings to acquire stock (Wagner et al., 2003). The assumption is that when employees place their own savings at risk to purchase company stock, they are likely to be highly motivated to monitor the firm's performance, and do all they can to improve it (Blasi et al., 2003; Reichheld, 1996). In other words, when employees invest more of their personal savings in company stock, they may pay more attention to the firm's performance, act more responsibly, and feel more accountable for organizational outcomes (Bakan et al., 2004).

Although the above assumptions have not been empirically tested for buying ownership plans such as the 401(k), there are several theoretical

reasons to expect that such voluntary investment in company stock will in fact be positively related to an array of ownership-related attitudes and behaviors. First, Klein's (1987) extrinsic satisfaction model of employee ownership holds that share ownership increases organizational commitment and satisfaction because it can be financially rewarding to employees. Indeed, decades of research have established linkages between performance-based pay systems and outcomes such as satisfaction, organizational choice, commitment, and turnover (Heneman, 1984; Katz & Kahn, 1978; Lawler, 1981). Klein's (1987) extrinsic satisfaction model also argues that financial participation leads to ownership outcomes because financial investment in the firm makes employees pay closer attention to the current and future performance of their own company's stock.

Second, this extrinsic satisfaction model of employee ownership is consistent with many aspects of Agency theory (Eisenhardt, 1989; Gerhart & Rynes, 2003), which asserts that stock-based rewards can align employee and shareholder interests (Jensen & Meckling, 1976; Williamson, 1985). According to the Agency theory, buying ownership plans align the interests of employees and shareholders by making the value of employee rewards contingent on the price of the firm's stock. Thus, employees who have more investments in the company should work harder and engage in more ownership-type behaviors because the value of their investments is determined by the performance of the company.

Psychological Ownership

The second general approach to developing an ownership culture is through participative management practices such as open book management and employee involvement programs, which are designed to give employees a voice in work decisions and information about company performance. In support of these practices, the psychological ownership literature holds that employees are most likely to feel and act like owners when they perceive that they have been given information about the company and have control over relevant work and organization-related decisions (Pierce, Kostova, & Dirks, 2001). Empirical research demonstrates that fostering such perceptions in employees can be especially effective in developing ownership beliefs among them (Klein, 1987; Rosen & Quarrey, 1987).

The psychological ownership literature provides an explanation for why participative management practices have been shown to be positively related to performance, motivation, commitment, and retention (Pierce et al., 1991).

Research on the psychology of possession (Pierce et al., 2001) indicates that employee perceptions of *information* and *control* are essential to the development of ownership attitudes (Pierce et al., 1991). First, to feel like owners, employees must genuinely feel that they are intimately familiar with the company by having access to information about its performance, resources, and strategic direction (Rosen & Quarrey, 1987). Second, to feel like owners, employees must believe that they have a voice, or a degree of control over the decisions that affect their work and the company as a whole (Hammer & Stern, 1980).

The ownership literature further suggests that perceptions of company ownership are positively associated with feelings of attachment, liking, and shared responsibility (Van Dyne & Pierce, 2004). Research demonstrates that people become more attached to and show greater liking for objects of which they feel more possessive (Beggan, 1992; Nuttin, 1987). By giving company-related information, management sends a signal that employees can be trusted, which in turn motivates employees to use the information to benefit the company (Ferrante & Rousseau, 2001; Miles & Creed, 1995). Similarly, allowing employees to participate in decisions regarding day-to-day work practices and to have some control over operational decisions engages employees and motivates them to share tacit knowledge they might otherwise withhold (Rousseau & Shperling, 2003). These arguments are consistent with Klein's (1987) instrumental satisfaction model of employee ownership, which holds that employee ownership is more likely to lead to job satisfaction and organizational commitment when employees believe that it provides them with influence in the company in the form of worker participation in decision making.

In short, research over the past two decades has consistently shown that participative management practices, by enhancing employees' perceptions of information and control, are effective in fostering motivation, retention, commitment, and performance (Bakan et al., 2004; Klein, 1987; Rosen & Quarrey, 1987) – in other words, fostering ownership. Thus, the emergence of buying ownership plans such as the 401(k) raises an interesting research question about the *relative* importance of this pecuniary approach for fostering ownership-related attitudes and behaviors compared to the well-established effectiveness of employee perceptions of information and control. Is voluntary stock investment truly necessary for the development of an ownership culture? Which approach (pecuniary or psychological) is more effective in helping employees act and feel like owners? Discussed in more detail in the following text, advances and emerging theoretical arguments in the psychology of ownership literature suggest that pecuniary

approaches (via the purchase of company stock) may be less effective than psychological approaches (employees' perceptions that they have control and information about the organization and their work) for making employees act and feel like owners (Blasi et al., 2003; Rousseau & Shperling, 2003).

Relative Importance of Pecuniary versus Psychological Ownership

To summarize, based on theoretical models of ownership (Klein, 1987; Pierce et al., 2001), we predict that both psychological and pecuniary approaches to ownership will be positively associated with ownership perceptions, affective commitment, job satisfaction, ownership behaviors, and intent to stay in the organization. However, the ownership literature is also clear in suggesting that the two approaches are *not equal* in their degree of influence on positive outcomes. Specifically, there are several reasons to expect that voluntary stock investment may be significantly less important than perceptions of information and control in predicting employee attitudes and behavior.

First, perceptions regarding information and control are likely to be more psychologically salient in the minds of employees than is investment in company stock, because information and control perceptions are reinforced on a more regular (if not daily) basis. Information about company performance is often shared by employers in the form of quarterly or monthly performance meetings, company websites, bulletin boards, and in the circulation of data about productivity, profits, sales, etc. (Rosen et al., 2005). Similarly, employee perceptions of control are shaped daily as employees are given (or not given) input into decisions that affect their daily work and the organization as a whole (Bakan et al., 2004). In contrast, reminders of the pecuniary link between employee savings and the company's performance are likely to be much less frequent. Indeed, many employees do not actively monitor their investments after 401(k) allocations are made. For example, a study of TIAA-CREFF investors showed that over half never changed their initial investment allocations (Bailey, Nofsinger, & O'Neill, 2003). Moreover, employee investments in company stock generally are made into deferred retirement accounts (resulting in important tax benefits) such that returns are subject to long-term vesting schedules, and typically are not available until retirement (Blasi et al., 2003). Thus, employees are less likely to make a daily connection between the company's performance and their retirement savings.

A second reason that employee perceptions of information and control may be more salient than stock investment involves what has been referred to as the "1/n problem" (Benartzi et al., 2007). Some employee ownership scholars have questioned the motivational aspects of stock investment on the grounds that for most employees (with the possible exception of top executives), there is a poor line of sight between their day-to-day activities and the company's performance (Benartzi et al., 2007). Similarly, as companies get larger, the relative impact of one individual on the firm's overall performance becomes smaller, and the more trivial the individuals portion of the firms' overall profit (hence, the "1/n" terminology). Together, these forces are likely to weaken the link between stock investment and ownership attitudes and behaviors.

For these reasons, we would expect employee perceptions of information and control (i.e., psychological ownership) to be stronger predictors of ownership-related attitudes and behaviors than the degree to which they are voluntarily invested in company stock (i.e., pecuniary ownership). Specifically, we predict that:

Hypothesis 1. Employees' level of investment in company stock will be a less important predictor of *ownership perceptions* than will perceived information or control.

Hypothesis 2. Employees' level of investment in company stock will be a less important predictor of *affective commitment* than will perceived information or control.

Hypothesis 3. Employees' level of investment in company stock will be a less important predictor of *job satisfaction* than will perceived information or control.

Hypothesis 4. Employees' level of investment in company stock will be a less important predictor of *ownership behaviors* than will perceived information or control.

Hypothesis 5. Employees' level of investment in company stock will be a less important predictor of *intent to remain with organization* than will perceived information or control.

In testing these hypotheses, we directly respond to a recent question, raised by Rousseau and Siperling (2003, p. 559), concerning the relative effectiveness of pecuniary versus psychological approaches to developing an ownership culture. "The divisibility of ownership ... raises the issue of whether legal ownership [i.e., through financial incentives] plays a special

role in motivating workers as opposed to ... participation in decision making and access to financial data. It is an empirical question whether any of them *dominates* another in shaping the motivation of workers" (emphasis added). And we take the specifics of the empirical question they propose literally, by testing these hypotheses using *dominance analysis* (Budescu, 1993; Johnson, 2000; Johnson & LeBreton, 2004). Dominance analysis is a relatively new technique (at least in the organizational literature) that provides the most appropriate means for testing the relative importance of predictor variables (and importantly, as explained in the "Results," it controls for the possibility that support for our hypotheses could be helped by method-bound effects). As such, the incorporation of this analytic approach represents an additional contribution of the current research.

METHOD

Participants and Procedure

A non-unionized commercial real estate firm headquartered in the Midwest agreed to participate in this study. This firm had 1,066 employees spread across 15 geographic locations. Because the ideal methodology necessitated linking both archival (i.e., employee personnel files) and survey data for each employee, and because we wanted to avoid having participants write their names on their surveys, the following steps were taken (a procedure approved by the IRB at our University): first, the firm assigned each employee a unique identification (ID) number (and retained a record linking these numbers to employee names); second, the firm sent the list of these ID numbers along with the corresponding email address of each employee to us; third, when we sent out the electronic survey (described in the following text) to the employees, each email contained this unique ID number and employees were told they would need to enter it to access the survey; finally, after the survey data were collected, we sent the firm a list of the ID numbers of those employees completing the survey, and the firm sent us the archival data for these participants.

A week before the survey was sent out, a "pre-notice" (Dillman, 2000) email was sent to all employees of this company. This email came from the VP of HR and briefly described the upcoming study (noting it was an examination of factors relating to employee investment in company stock), encouraged employees to participate, and assured them that the data would go directly to the researchers and the firm would not have access to

individual responses. A week later, the email containing a link to the online survey was sent to all 1,066 employees. An additional email reminder was sent one week later. Following this procedure, we obtained responses from a total of 510 employees, resulting in a response rate of 47.8%. After removing responses with incomplete data, the final sample was reduced to 409.

Respondents were generally representative of the broader population of employees at this firm with regard to such variables as level of investment, age, gender, race, tenure, location, and division, and there were no differences between respondents and nonrespondents on any of these variables (all F s < 1.00 , $p > .05$). On average, respondents to our survey were 40.7 years old, with a mean organizational tenure of 5.7 years. Approximately 40% of the respondents were female and 93% were Caucasian. In terms of education, 23% of our survey respondents had a high school diploma or GED, 12% had a two-year-college degree, 51% had a four-year-college degree, 8% had a master's degree, and 6% had a professional or doctoral degree. The mean total compensation of respondents was \$69,273.

Variables

Employee Investment in Company Stock

We measured employee investment using the percentage² of employees' voluntary 401(k) contributions they elected toward company stock for the year preceding the data collection (at this firm, employees make 401(k) allocations at the beginning of each year). This variable was drawn from employee (archival) personnel files. We deemed this particular measure of employee investment in company stock most appropriate because, as a percentage, it controls for actual dollar amounts invested, which obviously can vary by salary. In addition, using the percentage of employees' 401(k) accounts as opposed to the percentage of employees' salary captures not what employees are willing to invest (which can be influenced by a number of factors), but of what they are willing to invest, what percentage do they choose to invest in company stock, which is more theoretically relevant. Values on this variable ranged from 0 to 100%, with a mean of 44% ($SD = 27\%$).

Perceived Control

We used Vroom's (1960) 4-item psychological participation scale, designed to assess the degree to which employees felt that they had control over what

went on in the organization. Items include: "In general I have a lot of influence over what goes on at _____," "I can usually influence the decisions of my immediate supervisor on matters that concern me," "My immediate supervisor asks me my opinion when a problem comes up that involves my work," and "It's easy to get my ideas across to my immediate supervisor when I have a suggestion for improving something" ($\alpha = .82$). Perceived control, as well as each of the other measures (discussed in the following text), was assessed on a 5-point response scale, ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). In addition, for all variables, items were averaged to form a single score, with higher numbers indicating a higher level of each construct.

Perceived Access to Information

This was measured with Beehr, Walsh, and Taber's (1976) 3-item scale, designed to assess the extent to which employees felt that the company shared important information with them (e.g., "I am usually told about important things that are happening at _____," "Decisions are usually made after consulting the people who have to live with them," and "Meetings are frequently held to discuss work problems with my co-workers and me" ($\alpha = .76$).

Ownership Perceptions

Ownership perceptions were measured using Van Dyne and Pierce's (2004) 7-item scale, which is designed to assess the degree to which employees feel as though they are owners of the company. Sample items include "_____ is my organization," "I feel a very high degree of personal ownership for _____," and "It is hard for me to think about _____ as mine" (reverse-scored; $\alpha = .93$).

Affective Commitment

Affective commitment was measured by Meyer, Allen, and Smith's (1993) 6-item scale, which assesses the extent of employees' emotional attachment to, identification with, and involvement with the company. Sample items include: "I would be very happy to spend the rest of my career with _____," "I do not feel a strong sense of 'belonging' to _____" (reverse-scored), and "_____ has a great deal of personal meaning for me" ($\alpha = .86$).

Job Satisfaction

Job satisfaction was measured by Cammann, Fichman, Jenkins, and Klesh's (1979) 3-item measure of overall satisfaction, which assesses the extent to which employees like or dislike their jobs. Items include "In general, I don't like my job" (reverse-scored), "All in all I am satisfied with my job," and "In general I like working here" ($\alpha = .81$).

Ownership Behaviors

Ownership behavior was measured using a 7-item scale based on Wagner et al. (2003). This scale assesses actions taken by employees that are motivated by their sense of ownership of the organization. Sample items include "I try to find ways to cut costs associated with my job in order to save money" and "I make suggestions about new, innovative ways of doing my job in order to make _____ more profitable" ($\alpha = .79$).

Intent to Remain with Organization

We measured employees' intention to remain with the organization using Mowday, Koberg, and McArthur's (1984) 5-item measure. Sample items include "At the present time, I am actively searching for another job in a different organization" (reverse-scored) and "I do not intend to quit my job" ($\alpha = .88$).

RESULTS

Table 1 reports the descriptive statistics and intercorrelations for all the study variables. First, as can be seen, company stock investment was positively related to four of the five outcomes: ownership perceptions and affective commitment ($r_s = .10, p < .05$), and job satisfaction and intent to remain with organization ($r_s = .09, p = .06$), as expected. However, as would be predicted by psychological ownership theory, these are relatively weak relationships. Moreover, the two dimensions of psychological ownership – perceptions of information and control – were both moderately related to ownership attitudes and behaviors (r_s ranged from .31 to .49, $p < .01$).

Second, we used dominance analysis to test Hypotheses 1–5 (that company stock investment would be less important as a predictor of the outcomes than both perceived control and perceived access to information). Dominance analysis involves computing the mean-squared semipartial correlation across all possible subset regressions to assess the relative

Table 1. Intercorrelations and Descriptive Statistics.

	M	SD	1	2	3	4	5	6	7	8
1 Company stock investment	44%	27%	–							
2 Perceived control	3.49	0.73	-.02	.82						
3 Perceived information	3.57	0.74	-.01	.56***	.76					
4 Ownership perceptions	3.88	0.73	.10**	.47***	.49***	.93				
5 Affective commitment	3.97	0.67	.10**	.45***	.49***	.73***	.86			
6 Job satisfaction	4.42	0.63	.09	.47***	.46***	.52***	.62***	.81		
7 Ownership behaviors	3.89	0.60	.01	.32***	.31***	.46***	.42***	.27***	.79	
8 Intent to stay	4.28	0.80	.09	.39***	.39***	.51***	.55***	.57***	.21***	.88

Note: $N = 409$. Reliabilities (coefficient alpha) are listed on the diagonal. ** $p < .05$ (two-tailed); *** $p < .01$ (two-tailed).

Table 2. Dominance Coefficients (Hypotheses 1–5).

Criterion	Investment Dominance Coefficient	Perceived Control		Perceived Information	
		Dominance Coefficient	Dominance Coefficient	Dominance Coefficient	Dominance Coefficient
Ownership perceptions (H1)	.011	.139		.151	
Affective commitment (H2)	.013	.138		.151	
Job satisfaction (H3)	.009	.153		.130	
Ownership behaviors (H4)	.001	.068		.059	
Intent to remain with organization (H5)	.008	.103		.089	

Note: $N = 409$.

importance of a set of predictors (i.e., Johnson, 2000; LeBreton, 2000; LeBreton, Binning, Adorno, & Melcher, 2004a; LeBreton, Ployhart, & Ladd, 2004b). Table 2 reports the dominance coefficient (which represents the average of the squared semipartial correlations across all possible subset regressions) for each predictor–criterion combination. As these results indicate, for every dependent variable, both information and control dominate over the investment variable in predicting the outcomes (i.e., have a larger dominance coefficient; there are currently no statistical significance tests for dominance coefficients, LeBreton et al., 2004b). In fact, the pattern of the semipartial correlations met the stringent criterion for "complete domination" of information and control over investment (a variable is said

to completely dominate another competing variable if the first has a higher squared semipartial correlation than the second across all possible subsets of the remaining predictors, Budescu, 1993; this criterion has since been relaxed, and researchers typically investigate the more lenient concept of "general dominance," based on the mean-squared semipartial correlation, as we have here). Thus, the dominance analyses clearly indicate support for Hypotheses 1-5: each of the participation-related perceptions (information and control) is more important for an array of relevant attitudes and behaviors than is the employee's investment in company stock.

An obvious issue in testing Hypotheses 1-5 is the fact that the perceived control and perceived access to information predictors are measured via the same method (self-report) as the outcome variables. If we were testing our hypotheses by comparing standardized beta weights (a more traditional, yet less-than-ideal approach to testing relative importance; LeBreton et al., 2004b), this could give these two predictors an advantage over the investment variable, not for theoretical reasons but for monomethod reasons (i.e., their relationships could be inflated due to same-source and/or same-method effects; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). But dominance analysis essentially controls for this, in the following way (J. LeBreton, personal communication, March 2006). The higher intercorrelations among the self-report variables serve to reduce the "unique" contribution that any one self-report variable makes to the R^2 . Because dominance analysis is based on the pattern of unique contribution across all subset regressions, this "method effect" actually hurts the self-report measures' ability to furnish unique prediction. Consequently, if method effects are driving the dominance of the two psychological variables, one would expect to find only one of them dominating over investment, but not both. Thus, because our results indicate both psychological variables dominating over investment, this cannot be merely a result of method effects.

DISCUSSION

The use of buying ownership plans (such as 401(k) plans) represents a case where "research has fallen behind the 'real world' and employers are proceeding without sound guidance from organizational behavior" (Westerman & Sundali, 2005, p. 100). As expected, we found that employee investments in company stock via 401(k) plans have a modestly positive impact on ownership perceptions, affective commitment, job satisfaction, and intent to stay. However, in support of the psychological ownership

literature, we found that financial investment was much less important in driving these outcomes than employee perceptions of information and control. These findings provide important practical insights to employers seeking to enhance their "ownership culture." That is, as we noted previously, employers have two basic choices regarding approaches to fostering ownership attitudes and behaviors: offering the potential for company stock ownership (i.e., pecuniary approaches) or offering opportunities for information and control (i.e., psychological approaches). By themselves, 401(k) plans (a pecuniary approach) may not be very effective in generating ownership outcomes among employees. This does not imply that companies should abandon 401(k) plans or related types of "buying ownership." Indeed, 401(k) plans provide companies and employees with substantial financial benefits that would be foolish to ignore (Benartzi et al., 2007; Blasi et al., 2003). However, these results do suggest that in terms of creating an ownership culture, efforts may be best directed toward increasing the level of perceived information and control among employees. Although we do not advocate that firms eliminate plans and incentives for employees to invest in company stock, such as matching employee contributions to 401(k) plans, the current results suggest that they may not be sufficient for establishing an ownership culture.

The ownership literature notes that information and control can be shared with employees independent of the use of stock-based rewards (Rousseau & Siperling, 2003). We find it particularly interesting that employee perceptions of information and control did not need to be directly tied to firm-level issues to have an impact on ownership attitudes and behaviors of the company as a whole. That is, in this study, employee perceptions of control over "proximal" work decisions (i.e., those made by their immediate supervisor) were associated with ownership attitudes and behaviors pertaining to the company as a whole. Similarly, we found that perceptions of information sharing about employees' work problems were strongly related to ownership outcomes relating to the entire company.

Thus, companies should not only communicate information about firm-level performance, financial and strategic issues, but also provide employees with information pertaining to problems concerning their everyday work. Moreover, ownership cultures are likely to be strengthened when employees are given opportunities to have a legitimate "voice" (Pierce et al., 1991) in when and how their work gets done and in decisions made by immediate supervisors. These findings are consistent with previous research indicating that employee owners did not necessarily expect that stock ownership will bring them control over firm-level strategic decision making, but rather

expected a financial outcome from their stock ownership (French & Rosenstein, 1984; Hammer & Stern, 1980).

Although we see our research as having a number of strengths, in terms of both contributions to both the literature and methodology, there also remain several limitations to acknowledge. Here we review these possible limitations as well as the corresponding directions for future research. First, this study is based on a single organization, which places constraints on the generalizability of the findings. It is possible that the observed results may be different in different types of organizations or may be a function of unknown characteristics unique to this particular company. Future research should investigate the relative importance of different dimensions of ownership across a broad range of companies in different industries and among a broad range of employee groups.

A second limitation of this study is that it did not specifically investigate the practices that lead to employee perceptions of participation. Thus, although this study provides evidence that perceptions of control and information are dominant predictors of ownership-related attitudes and behaviors, these results do not provide specific guidance on exactly how those perceptions can be enhanced. Future research should examine the impact of specific types of practices on ownership outcomes such as information sharing, decentralized structures, and autonomous job design.

A third potential limitation may be inherent to comparisons between psychological and certain pecuniary approaches to fostering ownership. Specifically, one could argue that "buying ownership" plans such as 401(k) plans are fundamentally different from employee involvement and open book management programs, because the former represents an investment choice by the employee and the latter represents a "gift" from the employer. As noted earlier, buying ownership plans are widely used for the purpose of improving the firm's ownership culture (Wagner et al., 2003), and employers provide incentives such as matching contributions for employees to participate in such plans (Blasi et al., 2003). As such, organizations are, at least to some extent, actively choosing to provide this opportunity to employees. However, it is also possible that there are meaningful differences in the behavioral and attitudinal effects of buying company stock compared to receiving company stock (which is more similar to the "gifted" psychological ownership approaches).

In light of this interesting possibility, we conducted a post hoc dominance analysis using an alternative form of pecuniary ownership involving a *receiving ownership* plan used by the company we studied. Specifically, we compared employee perceptions of information and control with the total

dollar value of employer-granted stocks given to employees (in this company, high potential employees were given restricted stocks as a retention device). The results of this dominance analysis can be found in Table 3. As Table 3 demonstrates, the pattern of dominance using the measure of receiving ownership was nearly identical to the pattern observed in Table 2 using buying ownership.

The only difference between the buying ownership and receiving ownership dominance analyses was found on one dependent variable: ownership behavior. Here, perceived information and control did not dominate in the prediction of ownership behavior over receiving ownership. The predictive power was the same across the received ownership and perceived control variables, with perceived information being the weakest of the three. Despite this one difference, the overall pattern of results was largely the same between the buying ownership and receiving ownership dominance analyses. Taken together, these results indicate that future research is needed to tease out the potential differences between buying ownership, receiving ownership, and psychological ownership approaches to developing an ownership culture. However, the pattern of our post hoc results are also consistent with our hypothesized findings, suggesting that pecuniary ownership is less critical to the development of employee ownership outcomes than the development of employee perceptions of information and control.

Finally, this study was limited in that it was cross-sectional in nature. Thus, we cannot rule out the possibility of reverse causality in the relationship between stock investments and ownership-related outcomes.

Table 3. Dominance Coefficients (Post Hoc Analysis).

Criterion	Receiving Stock Dominance Coefficient		Perceived Control Dominance Coefficient		Perceived Information Dominance Coefficient	
Ownership perceptions	.013		.152		.152	
Affective commitment	.019		.125		.156	
Job satisfaction	.003		.131		.103	
Ownership behaviors	.077		.069		.036	
Intent to remain with organization	.002		.105		.107	

Note: Because only a certain number of employees in the company were given stock ownership, the sample size was reduced to 118.