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New Directions in Compensation Research: Synergies, Risk, and Survival

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**NEW DIRECTIONS IN COMPENSATION RESEARCH:
SYNERGIES, RISK, AND SURVIVAL**

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ABSTRACT

We describe and use two theoretical frameworks, the resource-based view of the firm and institutional theory, as lenses for examining three promising areas of compensation research. First, we examine the nature of the relationship between pay and effectiveness. Does pay typically have a main effect or, instead, does the relationship depend on other human resource activities and organization characteristics? If the latter is true, then there are synergies between pay and these other factors and thus, conclusions drawn from main effects models may be misleading. Second, we discuss a relatively neglected issue in pay research, the concept of risk as it applies to investments in pay programs. Although firms and researchers tend to focus on expected returns from compensation interventions, analysis of the risk, or variability, associated with these returns may be essential for effective decision-making. Finally, pay program survival, which has been virtually ignored in systematic pay research, is investigated. Survival appears to have important consequences for estimating pay plan risk and returns, and is also integral to the discussion of pay synergies. Based upon our two theoretical frameworks, we suggest specific research directions for pay program synergies, risk, and survival.

INTRODUCTION

Compensation in organizations is generally considered to be of strategic importance to the extent that it has implications for employee attraction, retention, and performance that, in turn, have consequences for organizational performance (Gerhart & Milkovich, 1990; Gomez-Mejia & Welbourne, 1988; Milkovich, 1988). This paper is concerned with the validity of the extant research addressing these implications and consequences. Our approach is a departure from that of most compensation reviews (e.g., Gerhart & Milkovich, 1992; Gerhart, Milkovich, & Murray, 1992). First, a major portion of the paper is less about compensation per se than it is about pay as a component in interdependent human resource and organizational systems. Second, in attempting to shed new light on the research on these systems and the compensation programs that they incorporate, we are at times less concerned with reviewing what we do know, or think that we know, than examining potentially fertile research frontiers about which we currently know very little. Moreover, we suggest that the future research directions we advocate eventually may indicate that we might know less about compensation than we currently believe, and that research focusing on compensation alone might not be the most effective approach.

We address three areas in compensation in which research is sorely needed. In each of these areas, we raise issues that lead us to question the prevailing wisdom on the effects of pay programs and that may have considerable implications for firms considering investments in compensation. First, we discuss the emergent issue of compensation fit or synergy with other human resource practices, human resource and business strategy, and other individual and organizational level attributes. The importance of the synergy research from a pay standpoint is that, should synergies exist to the extent that their proponents suggest, outcomes that we have been attributing to pay programs may in part be a result of the larger system. Before we can begin to apportion effects, we must first ask whether or not pay related synergies do exist.

A system that generates synergies may yield effects on performance that are larger than the sum of the individual system components, but a synergistic system also may be saddled with greater risk, the second of our three research directions. Risk, which in this context is the variance in effect sizes from a particular pay program or synergy, is a potentially important addition to compensation and synergy research in that its estimation could provide information on the probability of attaining the approximate mean effect size. To researchers, the mean is of little value without estimates of the variance. To organizations, engaging in better decision-making requires an estimate not only of the potential returns from an investment in compensation, but also the potential downside associated with that investment. Obviously,

whether the probability of attaining a certain outcome was high or low would have significant impact on organizational decisions to adopt the policy. We examine the concept of risk from this organizational decision-making perspective.

The third research direction for this paper, pay program survival (i.e., existence without being discontinued by the firm) has a direct bearing on both pay synergy and program risk. Plan survival may be a critical concept to study given that, although pay programs appear to be frequently discontinued, these terminations are not typically included in reviews of research on particular compensation plans. That is, what the research suggests is that the mean effect size and variance (i.e., risk) of a certain pay program or synergy may be based on a sample excluding a substantial number of pay plans, and their resultant synergies, that have been terminated. This could have considerable impact on the assessment of pay program and synergy effect sizes and variance. Hence, from a practical standpoint, survival information is quite relevant to firms considering whether any compensation plan merits investment. Furthermore, analysis of program survival can systematically address why pay programs are terminated, an important issue on which we currently have only anecdotal data.

Through the analysis of compensation synergies, the risk associated with pay programs, and pay plan survival, this paper attempts to plot a more effective road map for research addressing the relation between compensation, both alone and as a potential synergy component, and a variety of individual and firm level consequences. To do so, we cast pay decisions in a return on investment orientation, an overdue direction in the study of compensation (Boudreau, 1992; Gerhart & Milkovich, 1992). Moreover, we further examine compensation decisions through the theoretical lenses of a resource-based view of the firm and institutional theory. Application of these two distinct, yet at times complementary, frameworks allows us to attempt to explain how firms manifest risk and return preferences through compensation plan choices.

The resource-based view of the firm depicts an approach to compensation strategy that we characterize as high risk and high return. Much of the potential for success (i.e., high returns) in this framework may result from synergistic fit between the pay policy and other organization and employee level factors. In contrast, we believe institutional theory explains how firms might take a lower risk, moderate return approach. Under institutional theory, through following "best practices," firms decrease risk and may take a somewhat different route toward success. Before employing the two frameworks in our analysis of pay plan synergies, risk, and survival, we describe each theory in the following section, compare and contrast them, and finally discuss them in relation to contingency theory, a dominant paradigm in the field of human

resource management (Dyer & Holder, 1988; Gomez-Mejia & Balkin, 1992; Jackson & Schuler, 1995) that is implicit throughout our analyses of future compensation research (Note 1).

THEORETICAL APPLICATIONS OF RISK AND RETURN IN COMPENSATION

The Resource-based View of the Firm

Traditional research on competitive advantage has tended to subscribe to an industrial/organizational economic paradigm where firm performance is primarily determined by environmental conditions. For example, Porter (1980) presented five fundamental competitive forces that presumably define attractive industries where above normal returns are most likely. This industry structure approach largely ignores the role of firm idiosyncrasies in the struggle for competitive advantage (Porter, 1990). As such, it assumes both resource homogeneity (i.e., firms control the same resources and follow the same strategies) and resource mobility (i.e., firms are able to neutralize any resource heterogeneity that does develop by obtaining the new resources) across firms within an industry (Barney, 1991). In contrast, Barney characterizes the resource-based view of the firm as assuming that resource heterogeneity and immobility may exist, a departure from standard economic theory that provides an avenue for examining the link between firm idiosyncrasies (i.e., firm-specific resources) and firm performance.

A company's resources include all input factors owned and controlled by the firm that enable it to develop strategies that improve its economic status (Amit & Schoemaker, 1993; Daft, 1983). Barney (1991) classified these resources as physical capital (Williamson, 1975), human capital (Becker, 1964), and organizational capital (Tomer, 1987), the latter of which includes controlling and coordinating systems such as compensation and other human resources functions. Firm resources that hold the potential for producing and sustaining competitive advantage must be valuable, rare among the competition, not easily substituted for, and imperfectly imitable (Barney, 1986, 1991). As a result of possessing all four qualities, resources can yield competitive strategies and produce benefits that cannot be duplicated by competitors (Amit & Schoemaker, 1993). While the first two criteria, resources as valuable and rare, may generate a competitive advantage for the firm, it is only through the last two, imperfect imitability and non-substitutability, that sustained, rather than fleeting, competitive advantage results. For the purposes of this paper, resource value and imperfect imitability have the most relevance to analysis of the relation between compensation programs and sustained competitive advantage.

Why might we expect compensation and its potential synergies to qualify as sources of sustained competitive advantage? Traditional sources of competitive advantage include product and process technology, protected markets, access to financial resources, and economies of

scale (Pfeffer, 1994). However, these and other sources have diminished in importance, in part because they have become imitable or easily substituted for by other firms. As Pfeffer notes, during this decline, management of the workforce has emerged as a crucial determinant of competitive advantage. This emergence is a result of the potential value added from effective people management and the difficulty involved in achieving this effectiveness, imitating it, or substituting for it. Given the importance of compensation in the employment relationship, it seems likely that pay holds considerable potential in determining whether a firm can achieve competitive advantage.

Yet, considering the frequency of benchmarking and the wealth of prescriptive literature available on how best to construct certain types of compensation programs, specific pay plans would seem to be both imitable and not particularly rare, seemingly negating pay's ability to serve as a source of competitive advantage. Moreover, simply implementing an acclaimed pay policy in no way guarantees that the practice will even be of any value under the conditions at hand. Thus, from the resource-based perspective, pay practices in and of themselves would not appear to generate an advantage for the firm.

However, the resource-based view of the firm suggests that pay synergies might generate such an advantage. The resource-based perspective maintains that value necessitates strategy implementation that improves efficiency and effectiveness by exploiting opportunities or neutralizing threats (Barney, 1991). Because such opportunities include the potential for the pay program to capitalize on employee attributes, mutually reinforcing HR practices, and various other organizational features (e.g., company culture, business strategy), application of the resource-based view (and contingency theory, as we discuss later) suggests that it is the extent of fit or synergies among the specific compensation plan and other organizational factors that creates value by attracting, motivating, and retaining the appropriate employees. The prevalence of compensation consultants and companies searching for the right pay plan for their circumstances testifies to the importance (i.e., value) attached to and the difficulty (i.e., rareness) in achieving such fit.

The key issue then seems to become one of whether these pay synergies can be adequately reproduced by competitors. This issue of imitability seems to cast human resource management in a light previously reserved for technological innovation, where patents and trade secrets were employed in attempts to prevent resource imitation. As an example of such imitability concerns applying to HRM, Proctor & Gamble considered their newly implemented self-directed work teams in the early 1960's to be a competitive advantage and pronounced the approach a trade secret (Waterman, 1995). The company has since reversed its policies on

information sharing. Perhaps it is in some part a result of recognizing the difficulty in successfully imitating such resources as teams that has led Proctor & Gamble, as well as a host of other companies, to feel safe in opening up and freely discussing their approaches to HRM.

The resource-based view of the firm emphasizes two paths to imperfect imitability: (1) causal ambiguity between resources and the sustained competitive advantage, and (2) social complexity surrounding the resource generating the advantage (Barney, 1991; Dierickx & Cool, 1989). Barney describes causal ambiguity as a situation in which the relation between firm resources and sustained competitive advantage is understood neither by the firm's competitors nor by the firm itself. Thus, competitors do not know what to attempt to duplicate and have no means to ferret out such information from the equally unknowing firm (Lippman & Rumelt, 1982). The complicated nature of resource interdependencies (i.e., synergies), rather than advantage driven by a solitary resource, is at the heart of such ambiguity. In contrast, social complexity produces imperfect imitability through the existence of resources whose links to competitive advantage are comparatively clear, but are difficult to reproduce because management is limited in its ability to socially engineer such complex phenomena (Barney, 1989; Dierickx & Cool, 1989). Examples of these types of socially complex interactions are interpersonal relations among managers (Hambrick, 1987) and teams (Amit & Schoemaker, 1993; Reed & DeFillippi, 1990), and company culture (Barney, 1986).

We suggest that pay synergies potentially generate causal ambiguity and social complexity, thus rendering themselves imperfectly imitable and, hence, allowing them to become a source of sustained competitive advantage. As will be discussed in greater detail, it may be that these synergies not only potentially yield higher returns (i.e., sustained competitive advantage), but also that the complex interactions may result in higher risk associated with those returns. Thus, a resource-based approach that incorporates complex synergies may be characterized as high risk and high return, particularly relative to a "best practices" approach that is more consistent with institutional theory.

Despite an apparent need to consider synergies (i.e., interactions) when investigating pay effects, it is noteworthy that previous compensation research has tended to focus on the evaluation of the main effect of various types of pay plans (Gerhart & Milkovich, 1992). This main effect focus seems to implicitly associate a "best practices" approach with success. According to the resource-based view of firm, however, this main effect alone is insufficient for attaining sustained competitive advantage if the pay plan is imitable. Therefore, the existence of synergies becomes a critical question. Because they would seem to qualify as more difficult to imitate than pay plans alone, and because they could conceivably offer a significant payoff in

organizational effectiveness, the resource-based view suggests the need, in investigating the effects of pay, to better understand the degree to which synergies exist. Should pay synergies appear unable to significantly add to outcome variance (i.e., if they do not exist), however, frameworks such as institutional theory that instead indicate the benefits of imitating single "best" pay practices may have greater applicability.

Institutional Theory

Institutional theory can be employed to describe a lower-risk approach for organizations choosing and implementing pay practices, but this approach may not offer as much synergistic benefit as the resource-based model. What an institutional approach can offer to firms is a way to respond adequately to pressures in the business environment, so that, at a minimum, compensation does not become a competitive disadvantage. This is not to suggest that an institutional approach may not yield significant benefits, just that all else equal it may tend to capitalize less on synergy and thus yield fewer benefits than a successfully implemented resource-based approach. We discuss later how firms that incorporate "best practices" or benchmark with other firms, may in fact tailor these imitated pay practices in such a way that additional benefits flow from them.

According to institutional theory, organizations respond to pressures in their environments to conform to accepted ways of doing business so that they will appear legitimate to investors, customers, and others from whom resources flow and with whom they have relationships (DiMaggio & Powell, 1983; Edelman, 1990; Meyer & Rowan, 1977; Jepperson, 1991; Scott & Meyer, 1994; Tolbert & Zucker, 1983; Tolbert & Zucker, 1995; Zucker, 1987). Accepted ways of doing business are defined in the environment through a combination of historical, cultural, social, and other environmental forces that arise from a variety of sources, including the government, professions, and sources internal to organizations (DiMaggio & Powell, 1983; Trice, Belasco, & Alutto, 1969; Zucker, 1987). Organizations themselves are seen as socially-constructed, routine-reproduced programs or rule systems (Jepperson, 1991). The end result of the operation of institutional influences is that over time, many organizations acquire similar structures, or use similar practices (Meyer & Rowan, 1977). Institutional influences, then, are visible in patterns of diffusion among organizations (Meyer & Rowan, 1977; DiMaggio & Powell, 1983; Tolbert & Zucker, 1983). Over time, as newer pay practices such as variable pay or gainsharing come to be seen as acceptable ways of doing business, increasing numbers of firms from a variety of industries will adopt some form of these pay policies, and an ever-widening pattern of diffusion will be evident. The level and form of organizational responses to institutional pressures, as is discussed next, may vary. Replacing or altering

institutionalized pay practices requires substantial resources and/or exogenous shocks to an organization (Eisenhardt, 1988; Powell, 1991), even in the face of evidence that the existing system was not meeting the needs of the firm. However, in the presence of a variety of legitimate practices from which organizations may choose, deinstitutionalization or change may occur more easily and with fewer costs (Stryker, 1994).

Organization Responses

DiMaggio and Powell (1983) distinguish three mechanisms by which organizational practices such as compensation may come to be institutionalized: 1) coercive processes which reflect political or legal pressures, 2) mimetic processes which result from organizational uncertainty, and 3) normative processes. In other words, organizations may be forced to adopt, may imitate, or may be influenced by norms to adopt certain pay practices. Practices may be institutionalized through the endorsement of independent or outside groups as well (Powell & DiMaggio, 1991; Elsbach & Sutton, 1992). For example, positive recognition of a pay practice by an organization such as the Conference Board, or in the form of a Malcolm Baldrige Award, or by a governmental council on productivity would be helpful in legitimizing a particular pay policy. Such recognition serves as an endorsement of the policy in the business environment.

Organizations may respond to institutional pressures in a variety of ways (nature of response), with varying levels of effort (intensity of response), and at varying rates (early versus late response) (Dobbin, Edelman, Meyer, Scott, & Swidler, 1988). Along these lines, Oliver (1991) distinguishes five general responses of organizations to institutional pressures: acquiescence, compromise, avoidance, defiance, and manipulation. Organizations also may adopt a combination of these strategies (Edelman, 1992; Powell, 1991).

Organizations uncertain about how to respond to pressures regarding their pay systems or with ambiguous goals in this regard, may mimic or benchmark with other organizations, particularly those that appear to be more legitimate or successful (DiMaggio & Powell, 1983). For example, it is common for organizations to determine pay levels from market-wide pay surveys (Rynes & Milkovich, 1986) or to implement pay plans advocated by consultants or academics as "best practices" (Buck Consultants, 1994; Conference Board, 1990; Hay Group, 1994; Kochan & Osterman, 1994; Pfeffer, 1994). Firms will tend to imitate organizations that are seen as "modern", or as examples of progress and justice, and practices will diffuse among these modern firms more rapidly (Strang & Meyer, 1993). In fact, the fewer models available to mimic or consider, the faster that practices will spread (DiMaggio & Powell, 1983). In any case, these processes of imitation could save valuable resources for organizations that trust the decisions of another successful organization.

However, Barringer and Milkovich (1994) note that imitation may not always be positive for the organization, and suggest that institutional theory is unclear regarding when such actions might cease to be rational and efficient. Moreover, Abrahamson (1991) has theorized that while fads and fashions (institutional responses) may fulfill symbolic functions, they may actually harm organizations because they preclude the adoption of administrative technologies that might be more efficient, or in the language of the resource-based view of the firm, create value and inimitability and lead to sustained competitive advantage. In support of Abrahamson's contention, the tendency for firms to flock to the most recent compensation and management fads, frequently with very disappointing results, has been repeatedly documented in the popular press (e.g., Bleakley, 1993).

Organizational responses to institutional pressures are often times minor or symbolic in nature. It may be sufficient for organizations to give the appearance of conformity to institutional norms (Edelman, 1992) in the form of changes in organization language (Meyer & Rowan, 1977) or procedures (Powell, 1991). In addition, these responses may be attractive to organizations because of the low cost and effort involved (Edelman, 1992), although there is some question whether this is in fact the case (Tolbert & Zucker, 1995).

Tolbert and Zucker (1995) offer a progressive, three-stage model of the degree of institutionalization of practices: habituation, objectification, and sedimentation. Habituation is a pre-institutionalization stage in which a number of organizations may simultaneously invent similar structures in response to environmental pressures. Objectification, in turn, adds social consensus about the value of a particular practice, resulting from evidence about the practice's efficacy, and the fact that the practice has been pre-tested in other organizations. The sedimentation stage represents the highest level of institutionalization, at which practices and structures have survived over time and over persons within organizations, and have diffused to many organizations.

Sedimentation represents the stage of lowest risk for organizations mimicking the pay practices of other organizations because the practice has been tested, is normatively accepted or legitimate in the environment, and has withstood the test of time. These stages of institutionalization have implications for patterns of diffusion. At early stages, such as habituation and objectification, we might expect to see similar pay systems in organizations that share product and labor markets. As sedimentation occurs, pay policies (e.g., variable pay, gainsharing systems) will diffuse to similar and dissimilar organizations.

Organization Characteristics

To some extent, all organizations are subject to institutional pressures, but certain organizations may be more vulnerable to institutional pressures than others. We briefly detail some of the characteristics that have been identified with responsiveness to institutional pressures, and offer the speculation that firms with these characteristics may be pulled toward an institutional approach rather than a resource-based approach, absent a strategic choice otherwise. This is despite the fact that these organizational characteristics tend to describe firms with substantial resources, who might most easily adopt a resource-based approach.

Meyer and Rowan (1977) emphasize that the complexity of organizational relationships influences the incorporation of legitimate elements. Thus, one might expect that organizations interacting with many other organizations would have more exposure to different, new, or innovative pay systems. Supplier organizations may be more susceptible to institutionalization of the pay systems of their customers who pressure them, normatively or through other means, to do business in an acceptable manner. On the other hand, Oliver (1991) has suggested that highly cohesive organizations or those with strong internal cultures may be more likely to resist institutional pressures. This is consistent with our discussion of organizations that might adopt a resource-based approach to pay practices.

Organizations that are more visible to the public or that engage in close business-state relationships of any sort, are more likely to respond to institutional pressures (Dobbin et al., 1988; Edelman, 1990, 1992; Powell, 1991). Organization size is related to this variable since the greater the size of the organization, the greater the potential visibility (Edelman, 1990, 1992) and also the more complex the relational networks. Following this, Tolbert and Zucker (1983) suggest that size should predict diffusion early on in the process, but not later when all types of organizations will be subject to the effects of diffusion. Also, large, visible organizations may be more likely to be the targets of members of protected groups seeking improved corporate records on paying women or minorities, particularly as the demographics of the U.S. workforce change (Carroll, 1993).

Organizations with formally trained professionals, employees with higher academic credentials, and/or employees who participate in trade and professional associations, will tend to incorporate institutional elements to a greater extent (Baron, Dobbin, & Jennings, 1986; Barringer & Milkovich, 1994; Dobbin et al., 1988; DiMaggio & Powell, 1983). Organizations may hire formally trained human resource professionals or compensation consultants who have access to the most legitimated pay practices and will perform their jobs by implementing these

legitimated pay practices. In fact, human resource professionals may be considered the "engine" that drives the diffusion process (Edelman, 1990).

Relationship Between the Two Theories

We have identified a number of dimensions on which approaches to pay system choice may differ in our discussion of the resource-based and institutional approaches to compensation. Primary among these is the tradeoff between risks and returns, and strategic versus less strategic approaches to compensation choices. In sum, resource-based approaches represent a high risk--high potential return option, whereas institutional approaches represent a low risk--lower potential return option. Resource based approaches to compensation aim for sustained competitive advantage by adding value in a way that is rare and difficult to imitate, whereas institutional approaches strive for parity with other organizations in the business environment. In some senses, the high potential for resource-based approaches begins where the benefits of institutional approaches end. For instance, after best practices add value to the firm (institutional approach), firms may extract additional benefits by adding complexity to the program and integrating it with other firm functions (resource-based approach). Table 1 summarizes these and other differences between the two approaches.

TABLE 1: A Comparison of Resource-Based Theory and Institutional Theory

	Resource-Based Theory	Institutional Theory
Key Idea	Firms strategically develop and integrate practices within systems	Firms choose practices in response to institutional pressures
What Drives Choice of Practice?	Strategy	Environment
Manifestation	Firms develop complex, unique practices and integrate them in firm culture and with other practices	Firms imitate the practices of other firms, especially practices that are normatively acceptable
Coupling	Tight	Loose
Goals: Level 1 Level 2 Level 3	Inimitability / Rarity / Integration Synergy Sustained competitive advantage	Legitimacy Continued resources, relationships Survival
Risks/Returns: Risk Minimum Required Resources & Effort Potential Pitfalls Potential Gains Potential Imitability of Practice	High High Penalty for system failure High -synergy Low	Low Low Penalty for nonconformity Low – avoid penalties High
Assumptions	Unique is good Complex is good People and firms can optimize Firms are idiosyncratic	Conformity is good Simple is good People and firms satisfy Firms are similar over time

Despite the apparent oppositional nature of the resource-based view of the firm and institutional theory in predicting firm choices of compensation policies and practices, these approaches are compatible in several ways. First, institutional theory's concept of "decoupling" suggests the possibility of an organization following both institutional and resource-based approaches to compensation. Decoupling involves the separation of responses to the institutional environment from responses to the technical environment, or a separation of administrative structures from the technical core of the business (Meyer & Rowan, 1977; Zucker, 1987).

In terms of pay systems, organizations that decouple may respond to institutional pressures through their administrative functions, but protect the core or strategic pay practices from institutional pressures. For example, there are currently institutional or normative pressures in the business environment for organizations to implement pay-for-performance systems. Firms respond to these pressures in a variety of ways, including rhetoric about the extent to which their current pay system is in fact a performance-driven system. In actuality, many firms are continuing to use conventional merit pay systems that may permit relatively little leeway in distinguishing high and performers (Gerhart & Milkovich, 1992). In other words, a firm may be protecting its resource-based conventional merit pay plans (i.e., resource-based to the extent that the merit plan, which, in this case, retains lower wage differentials than would a plan with a large incentive pay component, is tied to other firm attributes, such as an egalitarian culture) by removing, or decoupling, it from communications about their compensation system.

Another scenario that indicates the potential compatibility of institutional and resource-based approaches stems from the lack of guarantees that an imitated pay practice will operate the same way in different firms. Stryker (1994) outlines how practices copied from other organizations may transform within the new organization as they are interpreted in new ways and used by those who hold power. Similarly, Pfeffer (1994) describes how implementation of best practices may differ across firms, and how firms may choose different subsets of best practices. Both examples illustrate how an institutional approach practice, imitating pay policies, can potentially evolve into firm-specific synergies.

Related literature suggests that resource-based and institutional approaches of firms are complementary as well. Baum and Oliver (1991) found that institutional linkages (relationships with legitimate or endorsing organizations) moderated the relationship between organizational transformation and the risk of failure. Institutional linkages within firms may be analogous to the interconnectedness of pay systems and other organizational functions detailed by the resource-based approach. By extension, pay practices that are linked to other pay system

features, to other human resource functions, to the strategic goals of the business, or to powerful supporters outside of the human resources function may have greater chances of survival. Institutional responses and linkages can be particularly effective in the case of new pay systems, which might be said to possess a liability of newness (Baum & Oliver, 1991; Singh, Tucker, & House, 1986; Stinchcombe, 1965), or a greater risk of failure.

An example of external institutional linkages is the relationship between firms and their suppliers in the automotive industry. Firms may require that their suppliers implement a range of similar practices, including pay systems, in order to ensure that quality standards are met (Avery, 1995). An example of internal institutional linkages is the relationship between executive pay systems and pension funds. Pension fund administrators may place restrictions on the components and amounts of executive pay in order to protect the retirement funds of other employees (Chernoff, 1995). Another example is the common linkages of gainsharing pay programs to suggestion systems and to organizational goals such as quality and safety (for a review, see Welbourne & Gomez-Mejia, in press).

Further evidence regarding the value of institutional linkages is the finding by Singh et al. (1986) that all of the organizations in their sample that were not externally legitimated had a constant hazard of organizational death. This argues for institutional responses even among organizations that choose a resource-based approach to their pay practices. Such institutional responses are not difficult to imagine. For instance, Pfeffer (1994) observed the existence of numerous best practices, even within the same human resources area. Thus, sustained competitive advantage could be enhanced both by the value created by the legitimization via subscribing to best practices and the inimitability created by a unique blend of these policies. Interestingly, Singh et al. also found that among not-for-profit organizations, the attainment of external legitimacy played a larger role than internal coordination processes in determining the survival rates of the organizations; however, we speculate that the latter may play a larger role in private sector organizations in which competitive advantage is more critical.

A final way that resource-based and institutional approaches to compensation may be compatible is in the area of strategic behavior. Organizations may respond strategically under institutional theory and the resource-based view of the firm. While organizations have been viewed primarily as passive recipients of institutional influences in institutional theory, Oliver (1991) argued that it is possible for organizations to respond strategically to institutional influences. And, of course, the resource-based view of firms is posited on the strategic action of these organizations. The Underlying Presence of Contingency Theory

In the preceding descriptions of institutional theory and the resource-based view of the firm as our two lenses for discussing new research directions in compensation, we have refrained from directly invoking contingency theory, which is probably the leading general paradigm in HRM and is also becoming increasingly influential in the study of pay (Dyer & Holder, 1988; Gomez-Mejia & Balkin, 1992; Jackson & Schuler, 1995). In fact, principles of contingency theory underlie much of our application of the resource-based view of the firm and, though to a lesser extent, also are present in the application of institutional theory. While the contingency notion that "fit matters" is present throughout this paper, the aspects of institutional theory and the resource-based view that extend beyond that principle provide further insight into the future research directions in compensation that we propose.

Contingency theory and its relationship with compensation in particular is described by Gomez-Mejia and Balkin (1992). They note that the paradigm has provided a conceptual rationale for matching specific compensation strategies to specific conditions in order to positively influence firm performance. Fundamentally, the theory holds that organizational performance is a function of the fit between organizational elements, with a lack of fit precluding synergistic function and resulting in suboptimal operation. Gomez-Mejia and Balkin report that a corollary of the theory is that the contribution of any one element is a function of its fit with other elements and is not simply the result of the element's independent effect. (We elaborate on this point in our discussion of synergy research.) The authors cite a stream of research that supports the contention that fit among such elements as firm strategy, structure, technology, and environment benefits organizational performance. However, it should be noted that these studies examined bivariate fit relationships (e.g., structure and technology), as opposed to bundles of resources, and did not involve HR practices.

Certainly, contingency theory has features in common with the resource-based view of the firm. In order to achieve sustained competitive advantage under the resource-based view, a resource must be of value. Value necessitates a fit between the resource in question, such as a pay practice, and other organizational features. In the language of the resource-based view, contingency theory is concerned with creating resource value. Much of our discussion of pay related synergies is either explicitly or implicitly concerned with this issue.

However, the resource-based view also holds that resources must be rare, not easily substituted for, and inimitable in order to achieve sustained competitive advantage. The concept of inimitability in particular, is important to our discussion of pay related synergies and seems to extend the analysis beyond the more general precepts of contingency theory. Also, contingency theory-based empirical research has tended to address external fit (i.e., the fit between HR and

elements outside of HR, such as business strategy and environmental conditions), while the synergies or fit discussed from the resource-based view more frequently involve internal fit (i.e., the synergy among HR features such as practices, HR strategy, or company culture). Additionally, the resource-based view seems to require fit for resource value, but is not explicit as to how the fit should be achieved, which deviates from the more deterministic, or at least suggestive, contingency theory. Finally, much of our discussion of synergies from the perspective of the resource-based view involves fit among a bundle of resources (e.g., compensation, selection, training, job security, and company culture), as compared to the usually bivariate relationships that tend to characterize contingency theory research (e.g., compensation and business strategy). In summary, although the basic principles of contingency theory are subsumed in our application of the value component of the resource-based view of the firm, emphases on synergy inimitability, internal fit, firm discretion, and complexity allow the resource-based view to provide a more in-depth analysis of the future research directions we advocate.

In terms of institutional theory, the compatibility with contingency theory is not as obvious, but is easily visible nonetheless. The adoption of best practices does not occur in a vacuum. While optimal fit may not always be of paramount importance to firms operating in accordance with institutional theory, few firms would knowingly risk the implementation of poorly fitting policies in the pursuit of the legitimacy they may bring. There are a number of well accepted, "legitimate" organizational practices in existence and it would seem unreasonable to assume that choosing among them takes place without at least some level of consideration of fit. Thus, institutional theory would appear to allow for contingency theory, but does not seem as obviously linked to it as is the resource-based view.

Similar to the case with the resource-based view, applications of institutional theory that are separate from contingency notions make it particularly useful for this paper's analysis of future research directions in compensation. Among these are the theory's predictions concerning legitimacy, imitation, imitability, and pay plan risk and survival. Additionally, the theory's frequently direct contrast with the resource-based view of the firm allows for competing perspectives on the topics discussed here. Consequently, although institutional theory can be consistent with contingency theory, for the research directions of interest in this paper institutional theory provides a vehicle for greater depth of discussion. However, it is useful to keep in mind that contingency theory principles underlie both of the theoretical lenses we employ to examine future research on pay plan synergies, risk, and survival.

FIT AND SYNERGY IN PAY AND HUMAN RESOURCE SYSTEMS

Having described the theoretical frameworks for examining the three major research directions that we suggest are important for conducting future compensation research and for better understanding past work, we now turn to the first of these directions, pay synergies. In doing so, we analyze the argument that synergies are valuable and difficult to imitate, critique the empirical evidence regarding whether synergies actually exist, and address the methodological and conceptual challenges inherent in pay synergy research.

Value and Ease of Imitation

Achieving synergies or fit between pay and other elements of the internal human resource system (or bundle) and the external business environment may be a means by which an organization can gain competitive advantage. According to the resource-based view of the firm, synergies have the potential to both create value beyond that generated by lone HRM programs (e.g., pay) and to create value in a way that is not easily imitated by competitors. Institutional theory also suggests that although there are pressures to follow widely accepted practices, what is adopted depends also on the organization's particularly institutional environment. Thus, the specific blend of practices may vary across organizations, possibly creating firm-specific synergies.

Consequently, given pay synergies' consistency with the resource-based view of the firm and their clear plausibility under institutional theory, we need to examine the evidence on whether such synergies exist. If they do, focusing just on the main effects of pay programs (i.e., instead of including interactions involving pay), as might be relatively more consistent with an institutional theory approach, is likely to be somewhat misleading (as might be review chapters that focus just on compensation main effects). Additionally, we need to determine the degree to which imitation of such synergies is likely to take place.

What do we mean by synergy or fit in a system of practices? Broadly speaking, we use these terms to refer to the case where effects are non-additive and dependent on the degree of presence of other system attributes (see Table 2). As one example, if a pay program alone results in an average performance increase of 10 percent, and a suggestion system alone results in an average performance increase of 10 percent, their effects would be additive if, when used in combination, their total effect is 20 percent. In contrast, if when combined, the pay and suggestion programs result in a 30 percent increase in performance, their effects are non-additive and depend on the other element in the human resource system. By the same token, misfits and "negative synergies" are also possible and in our example, would be indicated by the joint effect of the two programs being (significantly) less than 20 percent.

TABLE 2: Definitions and Methodological Indicators of Key Concepts in Future Pay Research

<u>Concept</u>	<u>Definition</u>	<u>Measurement and Analysis</u>
Synergy	A system of interdependent elements that includes pay and demonstrates non-additive effects on firm outcomes	Cluster analysis; linear combination of elements; statistical interaction; configurational-based models
Risk	Variance in pay plan returns	Variance
Returns	Outcomes from pay plans (e.g., productivity, performance)	Mean effect size; regression coefficient; mean differences
Survival	Pay program lifespan; existence at time of interest	Time; current status (i.e., existing or terminated); survival analysis; logistic regression

We can also distinguish between internal and external fit (Baird & Meshoulam, 1988; Huselid, 1995). Internal fit, as used here, refers to the possibility that the HRM system's effect on organizational effectiveness is greater than the sum of its component parts. For example, if compensation practices fit well with other human resource practices (in staffing, training, and so forth), organizational effectiveness may be greater than we would expect by looking only at the separate additive effects of these HRM factors. External fit is typically defined as the degree to which pay or the broader HRM system is well-suited to the corporate or business strategy. Again, the impact on organizational effectiveness is expected to depend on how well the pay or HRM system fits the context.

Before turning to the empirical evidence on synergy, it is useful to ask why it might be more difficult to imitate the success of a pay practice when it is part of a broader system. According to Pfeffer (1994), the success generated by human resource systems "is often not visible or transparent as to its source," which evokes Barney's (1991) concept of inimitability through causal ambiguity. Pfeffer goes on to say that issues such as culture, human resource management, and the consequences they have for employee behavior are often underestimated because they are seen as soft issues. Moreover, even when their importance is given more weight, the resource-based view's social complexity and causal ambiguity seem to prohibit imitation: it is often hard to comprehend the dynamics of a particular company and how it operates because the way people are managed often fits together in a system. It is easy to copy one thing but much more difficult to copy numerous things. This is because the change needs to be more comprehensive and also because the ability to understand the system of management practices is hindered by its very extensiveness.

Given the reasonable conceptual foundation for believing that synergies might be difficult to imitate, we turn to the issue of whether they have value. This important question necessitates deciding whether one needs to think beyond main effects. If pay and other HRM variables have main effects, it is more likely that piecemeal design of individual HRM practices, as might be explained by institutional theory, can be conducted and implemented with success. As Huselid (1995) notes, this is consistent with the "best practices" and "high performance work practices" approach that one often sees among both academics (e.g., Pfeffer, 1994; Kochan & Osterman, 1994) and practitioners interested in benchmarking. On the other hand, if fit with the internal and external context is important (i.e., if synergies create value), it may be very misleading from a scientific point of view to think in terms of additive main effects and rather risky to do so in the design and execution of HRM strategy.

A number of authors have made the case that looking at individual human resource practices alone may give misleading results because it is not possible to judge the effectiveness of a practice in isolation from the web of interrelated human resource practices, employee characteristics, and corporate/business strategy. The argument takes three forms. First, studying only one practice may result in the effects of other practices being picked up, leading to biased estimates (MacDuffie, 1995). For example, a pay program such as gainsharing may be found to have a positive effect on productivity, but only a part of the observed effect is due to gainsharing per se, while the remainder is due to the other aspects of the system that may covary with gainsharing, such as suggestion systems, empowerment, cross-training, and so forth.

The second form of the general argument is essentially the opposite. If there are synergies to be gained by designing a system of complementary human resource practices, we will underestimate the influence of HRM as a whole if we simply take the sum of the individual HRM practice effects (Ichniowski, Shaw, & Prenzushi, 1993; MacDuffie, 1995; Dyer & Kochan, 1994; Doty, Glick & Huber, 1993). A third variant argues that whether the effect of pay is over- or under-estimated depends on whether fit exists with the internal and external context (see above). Thus, studying main effects yields misleading and overly simplified results if a contingency model is correct.

Note that the three conceptual approaches imply different estimation strategies. The first suggests that contextual factors be treated as controls and their effects partialled to obtain accurate estimates of the effect of pay. In contrast, the second and third variants suggest that partialing would yield misleading estimates because it is the system formed by the interplay of pay and the contextual factors, which is more than the sum of the parts, that matters. Hence,

the employment of statistical interactions would be necessary to account for a pay program's total impact (i.e., main effect plus interaction effect).

Do Synergies Exist?: Empirical with greater firm performance for a sample of 243 manufacturing companies, there has been little systematic, quantitative work on the question of whether pay's fit with other factors, internal and external, results in synergies and improved organizational effectiveness. Indeed, Dyer and Reeves (1994) note the paucity of research on the more general issue of whether a fit between business strategy and human resource strategy has positive consequences for organizational performance. Given this dearth of empirical evidence, we look at both pay-specific and more general human resource systems research that incorporates tests of fit. We also have chosen to go into some detail in our analysis of these studies, both to get a better grasp of the state of knowledge and to raise cautions about pitfalls for future researchers to avoid. Clearly, the potential of synergies for enhancing competitive advantage by influencing, in the terminology of the resource-based view, both value and difficulty of imitation, means that the conclusion of this literature is quite important. We now look at the empirical evidence to date.

Cooke (1994) examined the relationship between productivity (value added per employee) and the use of group-based incentives (profit sharing or gainsharing) and employee participation programs (work teams) in a sample of 841 manufacturing firms in Michigan. He hypothesized that "the potential performance gains from combining [employee participation] and group-based incentives may exceed the potential gains of either by itself" (p. 597). Based on work by Levine and Tyson (1990), employees need to have both the motivation to put their knowledge to use in improving productivity through suggestions and mutual monitoring and the work organization structures (e.g., work teams) that enable them to do so. Unless both motivation and ability are above some threshold, little improvement is expected.

Cooke's (1994) results, however, do not provide much support for the hypothesized interaction in either the union or nonunion firms. In the nonunion firms, the existence of group-based incentives alone was associated with a productivity increase of 18.3%. The existence of teams alone had no real association with productivity. The existence of both group incentives and work teams was associated with an increase in productivity of 20.7%, which although somewhat greater than the simple sum of the main effects (thus supporting the synergy idea), was not so different as to suggest that group-based incentives can only succeed if combined with work teams. As such, the results are consistent with previous evidence that gainsharing plans (specifically) are associated with higher productivity even in the absence of

employee involvement systems (Kaufman, 1992; Gerhart, Milkovich, & Murray, 1992; Welbourne & Gomez-Mejia, in press).

The pattern of results in the nonunion setting provides stronger evidence of synergy. However, it was the opposite of what was hypothesized. The existence of work teams alone was associated with roughly 20% higher productivity and group-based incentives alone with 6% higher productivity. However, the combination of group-based incentives and work teams was associated with only about 5% higher productivity. In this case then, the whole was less than the sum of the parts. Why this should be so is not clear, although Cooke (1994) seems to imply that the combination of work teams and group-based incentives may create an environment where there is too much emphasis on mutual monitoring by employees, which may lead to conflict rather than cooperation. Cooke's results do reinforce the notion, however, that union status is an important contingency factor in pay decisions. In that sense then, his results support the idea of synergy, if only in a negative synergy sense.

Kruse (1993) compared the productivity of 112 organizations using profit sharing (for employees other than top management) to 163 organizations that did not. He found that productivity growth was 3.5 to 5 % higher in profit sharing organizations. Kruse also looked at the statistical interactions between profit sharing and the following variables: information sharing with employees, use of attitude surveys, job enrichment, use of autonomous Work teams, employment security, suggestion systems, and gainsharing. He concluded from his analyses that there is only "weak" (p. 87) evidence of an interaction with information sharing and "very little support" (p. 89) for interactions between profit sharing and the other human resource variables.

Utilizing cluster analysis to derive HR system categories, Arthur (1994) examined the impact of a control HR system versus a commitment HR system on labor hours and scrap rates in steel minimills. The use of a commitment HR system was associated with lower labor hours and lower scrap rates. In addition, he found that the amount of employee turnover influenced labor hours and scrap rates differently, depending on the type of HR system in place. Specifically, turnover was unrelated to labor hours and scrap rates in a control HR setting, whereas more turnover was associated with higher labor hours and scrap rates under an HR commitment system. The implication then is that under a commitment system, investment in employees is greater and they take on more decision-making responsibility. Consequently, turnover is more disruptive under this system. This finding supports the fit or system hypothesis. Arthur did not, however, examine whether the associations between the specific human resource dimensions included in his two HR systems were of an additive or a non-additive

nature. Additionally, he did not examine whether the fit between HR system and business strategy was important to the labor hours and scrap rate outcomes. Thus, the support for synergy is somewhat limited.

It is also interesting to note that the emphasis on variable pay (one of the study's key pay-related variables) was much lower under the commitment system (the "high performance" work system in this study) than under the cost control system. In contrast, other studies typically defined high performance work systems as having higher variable pay relative to other systems (e.g., Huselid, 1995; MacDuffie, 1995). The fact that there is disagreement regarding the role of pay in different human resource system classifications probably indicates that we have a long way to go before we have a good understanding of how pay fits with other human resource attributes.

MacDuffie (1995) studied the link between "human resource management policies" and "work systems" and productivity and quality in 62 auto assembly plants from around the world. The HRM policies included items measuring hiring practices, training, status barriers, and the degree to which pay was contingent on various measures of performance. The work systems scale contained items pertaining to the use of teams, employee involvement, suggestions systems, and job rotation. MacDuffie argues that "Innovative HR practices are often studied in a vacuum, with more attention paid to isolating the effect of individual practices than to understanding how different HR practices interact to reinforce one another, or how they are linked to business functions and strategy" (pp. 197-198). Therefore, he emphasized the importance of studying "bundles" of practices because of the "overlapping and mutually reinforcing effect of multiple practices" (p. 204).

To test for the existence of bundles, MacDuffie examined statistical interactions between his HRM policies and work systems scales and a third scale that measures the use of production buffers (e.g., inventory size) to guard against disruptions of production. Because the items within these scales were summed, no statistical interactions between items within these broad scales were examined. The support for the between-scale interactions that were examined was mixed, with somewhat stronger support being found in the productivity equations than in the quality equations. In the quality analyses, two of the three two-way interactions were statistically significant, but one in the opposite of the direction hypothesized. The three-way interaction was not statistically significant. In the productivity analyses, two of the three two-way interactions were statistically significant as was the three-way interaction. Thus, plants that were higher on the HRM policies and work systems, and had fewer buffer demonstrated better productivity than would be predicted from the separate linear effects of each factor (Note 2).

Ichniowski et al. (1993) gathered monthly observations on 30 steel finishing lines. Their dependent variable was line uptime, which they demonstrate is the key indicator of productivity once technology and product mix are controlled. The human resource independent variables were incentive pay (includes pay for knowledge), recruitment/selection intensity, teamwork/cooperation, employment security, flexible job assignments, knowledge/skill/training, communication, and labor relations. Their key conclusion was that "Systems of HRM policies determine productivity. Marginal changes in individual policies have little or no effect on productivity. Improving productivity requires substantial changes in a set of HRM policies" (p. 37).

However, it does not appear to us that the empirical evidence was necessarily present to back up this claim. For each HRM practice, they estimated a separate equation. Each HRM practice's coefficients were then compared, with and without HR system dummy variables in the equation. Individual HRM practice coefficients were smaller when HR system was in the model. However, the HR system variables (see their p. 28) were derived on the basis of the individual HRM practices using a clustering algorithm. Hence, the system variables may well have been collinear with the individual practices. As such, the coefficients on individual HRM practices should be diminished when the HRM system variables are included. This, however, does not speak to the question of whether there are statistical interactions between the HRM variables.

Huselid (1995) studied the link between financial performance and human resource management practices in over 800 firms. He derived 2 dimensions of what he referred to as high performance work practices (HPWP's), labeling them employee skills/organizational structures and employee motivation. Both dimensions included a variety of human resource practices. Regarding pay practices, the first dimension asked about the proportion of employees covered by variable pay programs and the second dimension included an item that asked about the relative weight given to performance and seniority in promotion decisions.

Huselid (1995) found that firms scoring higher on the two HPWP dimensions had higher levels of financial performance. However, our main interest is in his tests of both internal and external synergy hypotheses, for which there was generally little support. He operationalized fit as both a cross product and as a difference score (i.e., the difference between actual and ideal type HPWP's). To test a key internal fit hypothesis, he entered the cross product of the two HPWP dimensions into a regression equation in one analysis and entered the difference between the scores on the two HPWP dimensions in another analysis. To conduct the key external fit hypothesis, he entered the cross-product of business unit strategy, created on the basis of Porter's (1980) framework, and each of the two HPWP dimensions into a regression

equation and did a parallel analysis using the difference scores based on business unit strategy and the two HPWP dimensions. Overall, 3 of the 12 statistical tests for fit/synergy were statistically significant and had the correct sign. A fourth coefficient was statistically significant, but had the wrong sign. Huselid concluded that "on the whole the results did not support the contention that either type of 'fit' has any incremental value over the main effects associated with the use of High Performance Work Practices" (p. 663). Therefore, the results were most supportive of a best practices model rather than a fit or synergy model.

Overall, the research seems to only provide weak support for the resource-based approach that ties competitive advantage to inimitable and valuable synergies. A simpler main effects model of pay programs derived from institutional theory's elements of diffusion, legitimization, and imitation would seem to fit the research data almost as well. The question then seems to become one of why the synergy evidence is not stronger.

Why Isn't There More Empirical Support for Synergy?

Definitions and Technical Challenges

Methodological Problems

In contrast to the substantial emphasis in conceptual work on the importance of fit, synergy, systems, match, and like notions (e.g., Baird & Meshoulan, 1988; Dyer & Holder, 1988; Walton, 1985), the developing empirical literature suggests rather limited support for such concepts to date. Is the theory wrong? Or, have the empirical tests thus far been impeded by statistical difficulties in finding support for synergies? Although we cannot of course provide any definitive answer, we can identify factors that typically work against finding synergies and we can make suggestions for the future that may provide at least a partial solution.

One difficulty that often arises in testing synergy hypotheses is suboptimal statistical power. The most common statistical approach to testing for synergy is to estimate statistical interactions by adding a cross-product of variables that are hypothesized to interact to an equation that already contains the main effects. However, such tests often suffer from low statistical power (Bohrnstedt & Marwell, 1978; McClelland & Judd, 1993). Therefore, it is especially important to have a large sample size in order to provide adequate statistical power for testing fit interactions.

Reliable measures are a second factor in statistical power. Unfortunately, it is also well known that under commonly occurring conditions, cross-product terms have relatively poor reliability (Bohrnstedt & Marwell, 1978; Busemeyer & Jones, 1983; Kenny & Judd, 1984; Jaccard & Wan, 1995). Indeed, in the absence of correlated measurement errors, where the variables composing the cross-product are uncorrelated, the reliability of the product variable is

equal to the product of the reliabilities of the component variables (Bohrstedt & Marwell, 1978). More precisely, under assumptions of multivariate normality for the component variables, and uncorrelated error terms (accomplished by using deviation scores) for the component variables, the reliability of a product variable is (Busemeyer & Jones, p. 557):

$$r_{xy} = (r_{xx}r_{yy} + r_{x,y}^2)/(1 + r_{x,y}^2),$$

where r_{xy} is the reliability of the product of x and y , r_{xx} is the reliability for variable x , r_{yy} is the reliability for variable y , and $r_{x,y}$ is the correlation between x and y . The variables x and y are expressed as deviation scores from the mean for each person.

As an example, consider the interaction tests conducted in Huselid's (1995) ambitious study. In his tests of internal fit, the correlation between the two dimensions of HPWP's was .15 and the reliabilities of the two dimensions were .66 and .67. The resulting reliability of the product terms was thus .45, meaning that the statistical power of such a test would be significantly constrained (Note 3). Huselid called on future researchers to develop more refined measures of HPWP's before discounting the importance of fit and synergy. Our example supports his recommendation and, in fact, suggests that Huselid's finding of a small number of statistically significant fit coefficients may mean that such relationships were actually fairly strong in that they were found despite statistical power problems of the sort almost always encountered in such analyses.

Measurement error and thus statistical power are also reduced when using difference scores based on positively correlated components (Guilford, 1954), suggesting that indexes of fit that rely on difference scores of any sort may also underestimate the importance of fit. The formula for the reliability of a difference score is (Guilford, 1954):

$$r_{x-y} = (r_{xx} + r_{yy} - 2r_{x,y})/2(1 - r_{x,y}),$$

where r_{x-y} is the reliability of the difference score and the other terms are defined as previously.

As an example, if x and y each have a reliability of .70 and the correlation between x and y is .50, then the reliability of the difference score will be .40. Again, under such a scenario, statistical power is severely constrained, thus making it less likely that any statistically significant relationship would be found between such an index of fit and other variables.

Solutions

Aside from the obvious recommendation that large sample sizes and reliable measures be used, what else can be done to avoid making type II errors in studying synergy/fit? Although there is some question about whether statistical methods can compensate for poor measures, one can estimate models that incorporate attempts to correct for measurement error in all variables, including difference scores (Gerhart, 1988) and cross-products (Jaccard & Wan,

1995) using structural equation models such as LISREL. Until recently, there were serious reservations about using LISREL's maximum likelihood procedure to correct for measurement error in product terms because such variables are not normally distributed, violating the assumption of maximum likelihood estimation (Kenny & Judd, 1984). In addition, there were serious practical difficulties in using LISREL to estimate models containing interactions between latent variables (Jaccard & Wan, 1995). Fortunately, however, with LISREL 8, the practical difficulties are much less serious and a monte carlo study suggests that maximum likelihood estimation of such models is robust to the violation of the normality assumption (Jaccard & Wan, 1995). Therefore, we encourage researchers to take advantage of the approach laid out by Jaccard and Wan, which uses LISREL 8 to adjust for measurement error, thus leading to greater statistical power in testing cross-product terms to find statistical interactions. LISREL can also be used to adjust for measurement error in difference scores.

Alternative Indexes of Fit

Meyer, Tsui, and Hinings (1993) define organizational configuration as "any multidimensional constellation of conceptually distinct characteristics that commonly occur together" (p. 1175). They go on to state that configurational approaches make a "clean break" from contingency theories by moving away from the latter's emphasis on isolating a few relevant dimensions and its focus on simple, linear forms of statistical interaction. The goal of the configurational approach is "synthesizing broad patterns" and recognizing equifinality, the idea that different forms of organization can be equally effective.

Doty, Glick, and Huber (1993) operationalized fit within their configurational approach in four different ways. First, ideal types fit assumes that organizations can choose from two or more ideal type configurations of alignment between contextual (e.g., environmental turbulence), structural (e.g., decentralization), and strategic (e.g., product market development) factors. As long as the organization's actual configuration is close to any one of these ideal type patterns, it is expected to be effective. Second, a contingent ideal types fit model posits that contextual factors constrain an organization's choice of configuration such that only one ideal type will be most effective given the context. Finally, two other models are hybrid models, which suggest that organizations can be effective by being similar to a hybrid of ideal types. A contingency hybrid approach further specifies that the ideal type hybrid that an organization should be similar to depends on how close the organization's context is to the contexts associated with the ideal types that form the hybrid.

In any case, the general point is that configurational approaches offer a means of assessing fit and synergy that is quite different than the approaches used in the empirical

literature described earlier, which all flowed from a traditional contingency model. In the configurational model, the researcher must invest a great deal more thought and effort up front to hypothesize specific patterns of variables for defining the ideal types to which observed patterns will be compared. Thus, to use the contingent ideal types model, for example, to study the effectiveness of an HR system, one might need to develop a profile showing how high a defender organization should be on pay for performance, team versus individual work organization, degree of participation in decision making, selectivity in staffing, investment in training, employee abilities and personality traits, and so forth. This ideal type profile would then be compared to the actual profile using profile analysis (Note 4).

Synergy Summary and Suggested Research

At this early stage of pay synergy research, there is little empirical evidence either supporting or refuting the resource-based proposition that synergies contribute to sustained competitive advantage through their value and inimitability. Thus, we cannot draw firm conclusions regarding whether or not the traditional main effect research approach to compensation is sufficient. Because the analysis of fit is rather difficult from both a methodological and conceptual standpoint, however, we contend that further research incorporating the suggestions concerning statistical power, reliability, and alternate indexes is warranted and may eventually support the pay synergy hypothesis. In fact, given the extent of the obstacles we have discussed (e.g., sample size and interactions, reliability of product terms and difference scores), it is encouraging that synergies have received even mild support. Moreover, we suggest that the proper question may not be one of whether synergies exist, but when (i.e., under what conditions) do they exist. One rather profound implication from strong support for the synergy hypothesis would be that results from strictly "compensation research" or "selection research" are at best incomplete and at worst misleading. We suggest the following topics as directions for pay synergy research: * In addition to the need to continue examining whether and under what conditions synergies actually exist (which would, by definition, indicate value), research might begin to systematically investigate how well, if at all, they could be imitated. * Sheridan (1992) and Chatman and Jehn (1994) investigated whether and how much firms differed in organizational culture. Such an approach to synergies might prove to be valuable as well. In particular, the following statement by Chatman and Jehn illustrates how this type of inquiry could be instrumental in addressing the competing theoretical frameworks discussed here: "firms in similar industries may face constraints in how distinct their cultures can actually be and thus the extent to which culture can be used as a source of competitive advantage. In contrast, one might argue that rather than attempting to establish

unique cultures, firms should consider the benefits of imitating the cultures of successful players in their industries. This idea is consistent with an institutional perspective..." (p. 548). This is reminiscent of Gerhart and Milkovich (1990), who found that although labor and product market factors constrained pay level so that there was little variance across firms, pay mix (i.e., bonus to base pay ratio), however, differed consistently across firms. A similar approach to studying pay synergies would help us to infer if and how much strategic choice is associated with fitting pay to organizational attributes. * The notions of synergies and HR systems are in some ways similar to the concept of employment contracts, which view the employment relationship as a set or bundle of inducements expected to offset the bundle of required employee contributions (Simon, 1951; Rousseau & Parks, 1992). Thus, it is important to study multiple dimensions of the employment contract (Barringer & Milkovich, 1995), paralleling our advocacy of studying pay with respect to the entire HR context. * As noted earlier, alternate indexes of synergies might be a fruitful research path. Testing the configurational approach against the more traditional contingency approaches could be an initial step toward better conceptualizations of fit. * The issue of the timing of the implementation of a compensation practice that is part of an HR system raises additional synergy research questions. What are the synergy implications of "leading," "meeting," or "lagging" the implementation of other system practices? By how much time should a firm lead or lag for optimal effects on employee outcomes or firm performance?

RISK AND COMPENSATION PROGRAM RETURNS

The Concept of Risk

Gerhart and Milkovich (1992) have noted that a general problem with most compensation research is the lack of a return on investment focus. Even in cases where effect sizes are reported in meaningful metrics, there is typically not enough information to conclude what the net return of a compensation intervention or program is. To address this concern, Gerhart and Milkovich called for more emphasis on comparing implementation, administrative, and labor costs against a broader notion of returns, which includes employee attitudes and behaviors, quality, productivity, innovativeness, and profits. This approach to compensation program evaluation is conceptually consistent with the utility literature. (See Boudreau, 1992, for a review.)

More specifically, Gerhart and Milkovich (1992) noted the importance of two questions regarding investment in compensation programs. First, if one wishes to influence individual and organizational performance, is an additional investment in employee compensation likely to bring a greater return than investments in other human resource activities (e.g., staffing) or even

investments outside of HR (e.g., capital equipment)? Second, within compensation, which types of program investments are most likely to yield the greatest returns?

In addition, however, we suggest that a third question is also very important. In looking at any investment in compensation, what do we know about the risk associated with that investment? In other words, do we have sufficient information to tell us the possible range of returns and losses that might be generated or the likelihood of approximating the estimated return? It is our contention that some estimate of the risk associated with compensation programs is essential for adequately addressing the two guiding questions of whether to invest in compensation rather than in an alternate organizational function and, if investing in the compensation area, which pay program to same pay plan vary across firms and, to the extent that these outcomes are below an expected level, the firm can suffer substantial loss. Greater risk increases the likelihood and potential magnitude of this substantial loss.

Consider, for example, the finance literature, where investment decisions are routinely described in terms of both their expected value of returns and their risk. Risk is typically defined as the standard deviation or variance of expected returns (see Table 2). Of two investments that have the same expected return, the wise investor will maximize the probability of success by choosing the investment having the lower risk (this is analogous to the researcher choosing the most efficient of two unbiased estimators; both would have the same expected value but the greater efficiency guarantees a smaller confidence interval and a lower probability of "unexpected" estimates). However, higher risk investments may have higher expected value returns. In other words, there is a risk-return tradeoff.

Portfolio theory (Markowitz, 1952) focuses on how to take advantage of the higher returns offered by such investments through the use of a diversification strategy. This strategy reduces portfolio risk by including multiple investments that have risks that are at least partially independent of one another. The greater the degree to which two investments are independent, the lower the risk associated with the portfolio, because events precipitating the decline of investment one will have less deleterious effects on investment two. To the extent that investments negatively covary, in that one's positive consequences are facilitated by conditions that yield negative outcomes in the other, risk is further minimized.

Financial investing's capital asset pricing model (CAPM) breaks investment risk into two components (Brealey & Myers, 1991). Systematic risk stems from the basic variability of stock prices in general and captures the degree to which an investment moves in tandem with the market as a whole (see Bloom & Milkovich, 1995, for an application of systematic risk to organizational research in an agency theory context). In contrast, unsystematic risk refers to

variability in returns that arises from factors peculiar to the company (e.g., a labor dispute or a new product). Thus, in compensation, systematic risk would be a function of the degree to which the overall variability associated with compensation program outcomes is reflected in the specific pay policy in question. For instance, we might be concerned with the risk associated with skill-based pay plans compared to the risk associated with compensation programs in general.

The other portion of compensation risk is unsystematic in that it indicates variability in returns attributable to the match of a specific pay policy with a specific context. An example from compensation might be the variability in returns attributable to implementation of individual incentives in a firm that relies heavily on teamwork. Suppose a study found 10% higher productivity in firms with individual incentives, 10% higher productivity in firms with work teams, but only 5% higher productivity in firms with both. This notion of "negative synergy", as introduced in the preceding section, is a case of the whole being less than the sum of its parts. In this example, we would speculate that the individual incentives fostered competition within teams rather than cooperation, while the mere belonging to a team partially undermined the self-serving competitive behavior that thrives under individual incentives.

Negative synergy is a critical point from a risk perspective. When systems such as a set of HR policies are highly interdependent or "tightly coupled" (Weick, 1976), a concept that is addressed in detail later in this section, synergy can result in large departures from the expected level of outcomes (i.e., high risk). These departures can occur in either a positive or negative direction and, in a statistical sense, represent the additional effect brought on by program interactions (e.g., the destructive incentive by teamwork interaction in the preceding paragraph). The tight coupling label indicates that the potential consequences from interactions are substantial and, subsequently, so is the risk. Thus, we expect that tightly coupled HR systems are high-risk ventures that may reap outstanding returns for the firm, but may also prompt major losses.

Additionally, the CAPM mandates that systematic risk cannot be eliminated through diversification, whereas unsystematic risk can. Thus, the firms in our example could diversify their unsystematic risk by including another pay practice that was either partially independent of the individual incentives, such as a profit-sharing plan, or even negatively correlated, such as a team-based incentive. In this way, an individual that behaved cooperatively could still earn bonuses through profit-sharing or the group incentive while one that behaved competitively could earn individual incentive money. The firm, benefiting from both types of behavior, would have minimized its risk.

The most commonly used index of risk in the investment literature is beta, which is typically defined as the variability in a security or portfolio relative to some broader market index such as the Standard & Poor's 500. Hence, a stock or portfolio with a beta of 2 would be twice as volatile as the market index. It is in the direction of establishing a knowledge base through which we could make inferences about potential magnitudes of a beta-type index for pay plans that future research should direct some effort.

Applying Investment Return and Risk to Pay Decisions

Rationale

In the management literature, "capital budgeting" approaches such as the CAPM have been adapted from accounting and finance and applied to the assessment of the utility of employee selection and training programs (Boudreau, 1983a, 1983b; Cronshaw & Alexander, 1985). This adaptation, which incorporates such concepts as investment, returns, and risk into utility analysis, has not proceeded without debate, however, as Hunter, Schmidt, and Coggin (1988) identified several potential conceptual and methodological problems associated with employing capital budgeting methods in utility analysis. In response, Cascio and Morris (1990) and Cronshaw and Alexander (1991) rebutted the Hunter et al. objections, contending that capital budgeting is an appropriate utility analysis technique.

For the most part, the specifics of the utility analysis debate are beyond the scope of this paper. However, we do note that one of the key Hunter et al. (1988) criticisms, "for human resource programs, there is often no investment, making [capital budgeting] procedures inapplicable" (p. 253), clearly is not valid in the case of compensation program investment, where significant costs in staff time, consultants' fees, communication, administration, and, of course, pay itself are routinely encountered. Moreover, the capital budgeting rationale provided by Cronshaw and Alexander (1991), which maintains that capital budgeting indices are valuable because they provide a standard basis for comparison with other investments, appears to be particularly relevant for addressing the decision of in which pay program, if any, to invest.

Returns

Traditionally, the impact of pay decisions has been evaluated by looking at effect sizes (e.g., mean differences, regression coefficients) as indicators of returns from the policy (see Table 2). Returns in this context represent a wide variety of firm and employee level outcomes. Such outcomes can include organization or division level profits, productivity, innovativeness, and learning, as well as individual level performance, organizational citizenship behaviors, turnover, and attitudes. Although we are by no means to the point where we can provide precise estimates of the effect sizes of pay plans on these outcomes, a significant amount of research

speaks to this issue (e.g., Conte & Svejnar, 1990; Gerhart & Milkovich, 1992; Gerhart, Milkovich, & Murray, 1992; Gerhart, Minkoff, & Olsen, 1995; Kaufman, 1992; Kruse, 1993; Levine & Tyson, 1990; Petty, Singleton, & Connell, 1992; Weitzman & Kruse, 1990).

However, it is essential to realize that the expected return from a compensation decision or investment depends on a number of factors other than effect size. The size the regression coefficient (i.e., the mean effect size) is but one piece of the puzzle when evaluating a compensation program. A model of returns converted from the utility literature might include effect size, number of employees affected, start-up costs, and duration of impact (Boudreau, 1992), which, as will be discussed, influences both risk and expected returns. While the number of employees affected and the start-up costs are important factors, their estimation does not seem especially interesting from a scientific point of view. On the other hand, the effect size and duration of impact are quite important and interesting to us.

Although researchers have compiled a certain amount of evidence on effect size estimates, as noted above, we know virtually nothing at this point about duration of impact (i.e., compensation program survival). This seems to be an important knowledge gap, given that it is readily apparent that a program's discontinuation tends to cap any positive consequences (returns) it had produced. A program discontinued after a short time would seem less capable of recouping the substantial start-up costs. Moreover, a firm may also have expected future returns indirectly affected by survival rates since the fallout from program failure can have a direct impact on such employee attitudes as receptiveness to the next policy change. Thus, we suggest that, though relatively neglected in compensation research, pay program survival is a key element in the determination of compensation program returns, as is addressed more thoroughly in the next section.

Returning for a moment to this paper's theoretical frameworks, two further determinants of expected returns are probable. As we discussed from the perspective of the resource-based view of the firm, imperfect imitability of the compensation program or a synergy involving pay is necessary for any advantages derived from the program to be sustained over time. Thus, imitability may be a major factor in how the compensation intervention fares, at least from the longer term standpoint of expected returns relative to those of the competition. From the institutional theory perspective, it is clear that ability to imitate pay practices can garner the firm legitimacy, which assists in the attainment of competitive parity. Moreover, employing the two theories in a complementary fashion, we might hypothesize that an advanced ability to imitate (i.e., in terms of quantity, quality, and selectiveness) pay and other human resource practices might itself be inimitable and a source of sustained competitive advantage. Therefore, we now

propose returns from pay policies to be a function of a set of elements including effect size, investment (i.e., start-up) cost, survival rates, number of employees affected, imitability, and ability to imitate (see Table 3).

TABLE 3: Potential Determinants of Pay Synergies, Returns, Pay Plan Risk, and Pay Plan Survival

<u>Synergy</u>	<u>Returns</u>	<u>Pay Plan Risk¹</u>	<u>Pay Plan Survival</u>
Coupling	Coupling	Coupling	Coupling
Design factors	Design factors	Design factors	Design factors
Process factors	Process factors	Process factors	Process factors
	Survival rate	Survival rate	
	Synergy	Synergy	Synergy
	Investment costs		
	Number of employees affected		
	Imitability		
	Ability to imitate		
	Effect size		
	Returns variability		
	Justice perceptions		
	Early success		

¹ Coupling, design factors, process factors, and synergy are peculiar to the firm and thus represent potential sources of unsystematic risk; the pay plan's survival rate and previous returns variability are sources of systematic risk.

Risk

Given the preceding conceptualization of returns, we next attempt to similarly evaluate risk in a compensation framework. Although risk is undoubtedly considered in evaluating human resource decisions, including those having to do with compensation, the risk assessment, presumably undertaken by decision-making managers, is much more intuitive and informal, and is conducted in the absence of much systematic data. One of the purposes of this paper is to make suggestions that may help to remedy this situation.

Despite the importance of risk in investment decision-making, it has been all but ignored in the compensation literature. The closest that compensation research comes is the discussion of risk in the context of agency theory. There, the focus is on how principals choose between behavior-based and outcome-based contracts, and the use of the latter in cases where monitoring is difficult/costly. Of interest is the premium that must be paid to compensate the

(presumably risk averse) agent for taking on a portion of the risk (e.g., linking agents' pay to profits or stock performance). Agency theory is concerned with the choice of a compensation contract that efficiently aligns the interests of the agent with the principal. This decision pertains to contract choice, not program investment choice.

However, building on the agency perspective, Wiseman and Gomez-Mejia (1995) provide conceptual support for managerial hesitancy to invest in projects such as high risk pay plans. They propose a synthetic model of managerial risk taking that, in part, depicts the decision context as affecting risk bearing, which, in turn, affects risk taking behavior. Decision contexts in which the risk a manager bears is high (e.g., potential loss of employment) corresponds to lower risk taking. This occurs because the salience of the potential loss shifts attention from achieving success to avoiding failure. Thus, managers might avoid investments in high-risk pay plans because fear of the personal consequences of plan failure outweighs regard for the potential benefits of plan success.

Additionally, there is empirical research that at least indirectly indicates that the risk associated with these pay program investments could be an important determinant of whether or not they are adopted. Freeman and Kleiner (1990) found that plant managers were significantly more likely to be fired and less likely to be promoted in companies where a union organizing drive was mounted than in a control group of companies (the differences were even more substantial when the organizing drive was successful). While it is certainly not clear that similar fates would befall managers who unsuccessfully implement "high risk" compensation programs, neither does the prospect of being held partially responsible for the relative failure of large investments seem particularly implausible. More important, it is the perception that retribution is a possibility by those heavily involved in the compensation program decisions that would drive decisions to avoid high risk options. This perception does not seem altogether unlikely. Perhaps more directly applicable is a study by Hoskisson, Hitt, and Hill (1993). They found that managerial incentive compensation based on firm financial performance, intended as an alignment of the manager (agent) and owner (principal) interests, resulted in less, rather than more, risk-taking behavior by the managers, as measured by investment in research and development. This risk averse behavior can be interpreted as a result of the managers' inability to diversify risk, relative to the owners.

The risk associated with pay program investment, although rarely discussed in the compensation literature, is addressed in another human resources research area, utility analysis. The focus for these studies was the variation in utility estimates stemming from assigning a range of probable values to certain input variables in a selection context (Alexander

& Barrick, 1987; Cronshaw, Alexander, Wiesner, & Barrick, 1987; Rich & Boudreau, 1987). For example, Alexander and Barrick found large standard errors (i.e., high risk) for the utility estimates, as the standard error was typically one half of the mean. This indicated that the probability of attaining close to the mean effect of the selection program was rather low. For our purposes, the relevance of risk analysis in selection utility is summed up by Cronshaw et al., "The strategy proposed here is to quantify risk so that it can be treated explicitly when investment decisions are made. The result can only be better decision-making for the firm as a whole" (p. 285). Additionally, the authors' descriptions of the types of decision-making to be improved once again evoke the two questions posed by Gerhart and Milkovich (1992) that serve as a guide for this section, whether to invest in compensation and, if doing so, in which pay program to invest.

Characterizing compensation as an investment choice leads to the conceptualization of risk as the standard deviation or variance in expected returns from the pay program. As is the case with expected returns, risk is a function of pay program survival. For instance, suppose a certain type of gainsharing plan tends to produce very positive organizational outcomes (i.e., high returns) when fully up and running, but is prone to a high rate of early termination due to implementation difficulties attributable to middle management resentment or to difficulties in modifying incentive standards in response to technology changes. Because early terminations result in lower returns (e.g., failure to recoup start-up costs), the risk associated with such a program would be greater than that associated with an otherwise identical gainsharing plan that, by virtue of a provision somehow diffusing the middle management resentment or incentive standard problems, suffered fewer first year failures. Certainly, a firm investing in a pay plan would prefer to have information on these first year terminations, thus enabling it to make the lower risk decision.

As described earlier, total risk is the sum of systematic and unsystematic risk. The systematic portion of pay program risk revolves around the relation between the particular pay policy's variation in returns and the variation associated with all compensation or human resource programs (depending on the frame of reference). For example, individual incentives may carry high systematic risk relative to compensation plans in general (but they may also offer greater returns). The unsystematic risk has to do with the effects of the pay policy's fit, or lack thereof, with contextual issues peculiar to the firm, such as employee morale, company culture, or hierarchical structure. Certain types of compensation programs are more suitable, and consequently generate greater firm level outcomes, for companies at specific life cycle stages and with certain corporate and strategic business unit strategies (Gomez-Mejia, 1992).

Choice of a poorly fitting compensation plan would increase the unsystematic risk associated with reaping positive results. Thus, consistent with contingency theory, the particular firm context acts as a source of unsystematic risk and joins survival probabilities, which are discussed in detail in the next section, as one of the determinants of compensation policy risk (see Table 3).

Diversification

The CAPM and portfolio theory posit that risk is diminished through diversification of investments. Regarding compensation investments and diversification, we have no direct research to draw upon but we can speculate on the extent to which this concept applies. Most important perhaps is the fact that compensation "investors" may not be in a position to hedge their bets by choosing a portfolio of investment options. That is, factors such as the financial resources at hand or upper management resistance to wholesale change could render the diversification issue moot. This may simply mean that it makes more sense to treat pay decisions separately, rather than as part of a portfolio.

In this case, the relevant measure of risk would be total risk (systematic plus unsystematic) because no diversification of risk is possible. In contrast, it may be that there are situations in which compensation investors do have enough discretion in decision-making to make diversification an option. Some companies, such as Lincoln Electric, have multiple pay programs. Might their individual incentives, merit pay, profit-sharing, and stock ownership represent a portfolio of investment by management? Aspects of agency theory (e.g., the risk averse agent) and the literature we discussed as support for the idea that risk may be an important consideration for managers (Freeman & Kleiner, 1990; Hoskisson, Hitt, & Hill, 1993; Wiseman & Gomez-Mejia, 1995) would seem to indicate that diversification might be an attractive option, at least at the individual decision-making level.

Accepting for the moment the proposition that diversification involving compensation decisions may be an option at some firms, the question becomes one of what form this would take. It seems likely that diversification could occur at either the compensation or human resource policy levels. In the former case, firms could employ a variety of compensation programs for the same group of employees, as in the Lincoln Electric example. To the extent that the programs were independent, risk would be diminished because outcomes limiting the effectiveness of one program would not automatically apply to the other policies. That is, if a firm with multiple pay plans had a poor year, the possible negative consequences of little or no profit-sharing payouts, such as low employee morale and job dissatisfaction, could be mitigated by reception of individual incentives. The firm would have decreased the risk of employee fallout

through diversifying its compensation risk. At the behavioral level, individual incentives alone might produce overly (counterproductive) competitive behavior, but the diversification into profit-sharing (with individual shares partly dependent on cooperation) makes this outcome less likely.

In much the same way, companies could diversify by applying different pay plans to different locations or divisions, although this would potentially create equity and justice related problems. Pushing the diversification framework further, it could even be argued that the frequent classification of employees into pay categories of hourly, salaried, and salaried with large bonus potential, in effect, is another instance of diversifying compensation. It could be that extending substantial bonus opportunities to all employees puts too much financial capital at risk in a good year and too much employee good will, and the possible consequences of losing it, at risk in a bad year.

At the human resource policy level, diversification could spread risk among various HR functions. In this way, one policy could be of the high risk--high return variety while others exist in at least partial independence of the first, and may negatively covary with it. For example, compensation might be heavily laden with individual incentives so as to promote individual excellence, even at the risk of hindering cooperation or promoting gaming of the system. To decrease the probability that more than one HR function could be problematic at one point in time, the decision-makers might be motivated to hedge their bets by establishing or perpetuating selection and training programs that are independent from or negatively covary with the pay plan. For instance, the selection system might not stress the hiring of ambitious individualists or may even attempt to avoid this type. In this way, should the incentive plan need to be revamped, the selection system, via its independence from compensation, could continue in its present form. Similarly, a training program might be constructed such that it included cooperative skills. Should large problems arise with the individual incentives, the firm and the decision-maker may be buffered to some extent because the training function can continue contributing to the firm without major modification and has in fact helped to position the workforce for a move away from the individual incentives toward a group reward approach such as gainsharing. These risk diversification tactics might be motivated out of concern both for the firm and, perhaps, for one's own career.

Whether or not firms diversify would appear to be another aspect of compensation from the risk and return perspective that can be analyzed through applications of institutional theory and the resource-based view of the firm. However, we know so little about the concepts involved that these applications produce more questions and conjecture than they do answers.

Given our earlier observation that synergies involving compensation might be substantial contributors toward sustained competitive advantage, the resource-based view of the firm would seem to predict that diversification as a strategy would not yield such advantages. Choosing a system of compensation or HR policies on the basis of lowering risk through component independence and negative covariance rather than creating synergies would appear to result in lower potential returns. However, it may be that adept diversification is in and of itself an inimitable source of competitive advantage, particularly if choices are made so as to optimize the apparent diversification--synergy tradeoff.

From the institutional theory perspective as well, the prospect of diversification involving compensation is not entirely clear. At the human resource policies level, firms engaged in benchmarking and making policy choices on the basis of best practices might tend to acquire programs that were somewhat independent of one another, assuming the benchmarking, best practices, and legitimacy concerns were not addressed through adoption of an entire HR system. This independence, by definition, translates to a degree of diversification. On the other hand, if the benchmarked best practices at the time were dominated by policies whose outcomes were similarly influenced by the same organizational characteristic, such as firm performance, then diversification would not be present and the risk associated with the HR policy "portfolio" would be high.

In summary, we know too little about program risk and diversification at this time to draw firm predictions about compensation and HR systems from the two theoretical models. Moreover, it is not our intention, and it would be problematic, to push the diversification of risk framework much further as it applies to pay and HR investment choice. Nevertheless, the position that firms following an institutional theory approach diversify while firms following a resource-based strategy synergize is intuitively appealing. However, this speculation is probably at best a considerable oversimplification. Regardless, it does make for a starting point and a premise for future research.

Risk and Synergies (Coupling)

In the preceding discussion of the relation between synergies and diversification, and in the earlier examination of the synergy research, we have primarily taken a resource-based approach to the synergy concept. Subsequently, the implication has been that synergies involving compensation potentially facilitate the attainment of sustained competitive advantage via their inherent value and inimitability, which is further a function of synergies' social complexity and causal ambiguity. Capping the discussion of pay synergies at this point would be

ironically shortsighted in that it would endorse the approach to compensation research that this paper decries: assessing returns without assessing risk.

As discussed, much more research is necessary before we can specify the conditions under which complex pay synergies provide high returns to the firm. For the same reasons as in the study of pay programs alone, we also need to assess the variability in the pay synergy outcomes. Moreover, because pay related systems that are terminated early in their existence will probably be neglected or at least underrepresented in the research, as is the case with compensation research, we will also need to acquire some evidence of the system's survival probability. Accounting for risk and survival when examining the efficacy of pay synergies may be even more critical than when studying compensation by itself. Central to this heightened importance are the synergies' potentially greater returns, which was addressed earlier, and potentially greater risk, which is explained next in relation to the notion of coupling.

Several sociologists and social psychologists brought the concept of coupling into organizational study in the mid-1970s (e.g., Glassman, 1973; March & Olsen, 1976; Meyer & Rowan, 1977; Weick, 1976). Coupling refers to the interdependence or linkage between organizational events or systems. Glassman described coupling as the degree to which subsystems covary on the basis of common variables. Thus, either few linkages between subsystems or several very weak linkages characterize a "loosely coupled" system. Weick defined loosely coupled situations as those in which each element is responsive to the other but also retains its own identity and physical or logical separateness. In contrast, tightly coupled systems are those with responsiveness, but little distinctiveness. Meyer and Rowan, as we observed in the discussion of institutional theory, utilized the notion of loose coupling, or "decoupling" to explain organizational response to incompatible institution level and technical level pressures. In their example, the large gap between official educational programs and actual behavior was explained as a result of the decoupling of formal structures from actual work activities.

Coupling has direct relevance to the concept of pay synergies. Almost by definition, synergies involving compensation tend to be tightly coupled, at least relative to the loose coupling of systems where fit is not a consideration. A major change in compensation policy would tend to correspond to a change in selection, HR strategy, business strategy, company culture or any other firm attribute that defined the synergy. Of the two theoretical frameworks applied in this paper, the resource-based view would seem to more clearly advocate the tightly coupled synergies as inimitable sources of competitive advantage. In contrast, following an institutional theory approach (e.g., benchmarking to find best practices) would appear to

potentially result in a more loosely coupled HR or pay system, where, relative to the resource-based synergy approach, there may be more of Weick's (1976) distinctiveness among programs, but less responsiveness.

It should be noted, however, that institutional theory could also be consistent with tightly coupled synergies. For instance, this could occur in a situation where the firm decoupled the pay or HR system from official policy. That is, technical pressures could prompt the adoption of a tightly coupled HR system that was decoupled from the "official" policy of benchmarking and best practices. Relatedly, a firm could adopt an entire synergistic HR system that was seen as a benchmarked set of best practices. Finally, as we discussed earlier, it would be foolhardy to assume that the adoption of best practices occurs without consideration of fit. The differences between institutional theory and resource-based view approaches to coupling and synergies may simply be matters of the degree of importance attached to fit.

How the concepts of synergies and risk are related is evident in the application of coupling to complex technologies by Perrow (1984). Perrow discusses catastrophes and possible catastrophes in complex systems such as nuclear power plants, petrochemical operations, aircraft, and military weaponry. Although his analyses are directed in large part toward the interdependencies in systems' physical hardware, his arguments apply equally to more people intensive systems and he includes organizational systems in his framework. Fundamentally, Perrow's thesis is that tight coupling of a complex system is a high risk proposition. The logic of this position is as follows: (1) highly complex (i.e., interdependent) systems have the potential to produce unexpected complex interactions; (2) since component failures are inevitable, such complex interactions provide opportunity for multiple failures to interact in ways unforeseen by system designers, thus increasing the potential for system accidents; (3) these multiple failure interactions frequently are not visible or even comprehensible, and their potential frequency increases exponentially as the number of subsystems and degree of interdependence increase; (4) failures can be absorbed without system destabilization in the less dependent and more flexible loosely coupled systems, but tightly coupled systems must have contingencies (i.e., buffers, redundancies, and personnel, equipment, and process substitutions) designed in advance to effectively handle failures.

In short, Perrow (1984) maintains that complex systems will eventually break down in ways that were not anticipated and tightly coupled systems do not adapt well to the unexpected, thereby increasing the risk of serious accidents. The pertinence of Perrow's contentions for pay related synergies is more visible after considering the organizational research comparing loosely and tightly coupled systems. In a review of conceptual and empirical studies, Orton and

Weick (1990) summarized the relation between coupling and certain categories of organizational outcomes. They concluded that loosely coupled systems were more persistent, which referred to stability, resistance to large-scale change, and continued operation. Additionally, Orton and Weick suggested that loosely coupled systems at least partially buffer the organization by sealing off and preventing the spread of problems. Loosely coupled systems were also seen as more adaptable through the assimilation and accommodation of change. In particular, a literature review on minority influence by Nemeth and Staw (1989) is instructive in that it contends that striving for uniformity (i.e., tight coupling) limits dissent, adaptability, creativity, and survival.

Applying the positions of Perrow (1984) and Orton and Weick (1990) to compensation related synergies assumes that these are complex systems. Perhaps the simplest guideline was offered by Perrow (1984), who equated Thompson's (1967) serial production and pooled interdependence with linear systems and complex systems, respectively. It would seem logical that the interaction of pay and such elements as company culture, HR and business strategy, employee level attributes, and other HR functions warrants the more interdependent, or complex, classification. Given that, these systems would also seem to be relatively tightly coupled and, hence, appear to have a greater risk of failure.

For example, consider a cohesive set of HR policies that is designed to support the business strategy and is producing a rather homogeneous workforce in a manner similar to that described by Schneider's (1987) attraction-selection-attrition hypothesis. Certain exogenous shocks to the system, such as a change in the competitive environment (e.g., a shift from centralized to decentralized computing, as in the case of IBM) necessitating a new strategic approach by the firm, might leave the company struggling to adapt to a new focus. Moreover, it also might require the complete retooling of their compensation, staffing, and training processes, since they were all devoted toward interacting with each other in support of what has become an obsolete strategy. Thus, this environmental change could result in the termination and replacement of an entire HR system, rather than a single component, as might have been the case with more loosely coupled HR policies. This ripple effect, the inability of tightly coupled systems to buffer themselves to prevent the spread of problems (Weick, 1976), underscores the relatively greater possibility of serious costs that accompanies tight coupling.

Translating the example back to the calculation of risk, certainly such complete HR system renovations would inflate the variance in returns more than dealing with only the compensation or selection function. This example illustrates both the potential for pay synergies to suffer from low survival rates, and the subsequently greater variance in returns. The

importance of examining survival in compensation research will be discussed in detail in the following section.

Risk Summary and Suggested Research

Applying the concept of risk to compensation decisions provides an opportunity to characterize the range of effects firms might expect to see with various pay plans, rather than limiting the knowledge base to a potentially misleading mean effect size. Before making decisions, firms need to know the downsides of their options. Although pay synergies would appear to offer the potential for higher returns, they also, by virtue of tight coupling, would seem to suffer from greater outcome variability as well. Diversification of risk may be an option for firms with adequate decision-making discretion. From the perspective of our two theoretical frameworks, it may be that a resource-based approach results in pay synergies, or at least attempts at them, while an institutional theory approach might better correspond with diversification through incorporating partially independent best practices. For future research on risk and compensation research, we suggest the following areas: * Research could move toward the point where we could assign a beta-type risk indicator to compensation plans would generate a substantial amount of valuable data. Eventually, such an indicator could be applied to various pay synergies also, at which time the effect of coupling on risk could be investigated by looking at the difference between pay plan risk and synergy risk. One question worth pursuing would be whether synergies are only more risky when survival is taken into account. That is, might the mutually reinforcing policies in an HR system protect it from the frequent minor shocks, but be unable to buffer the system from the occasional catastrophic situation? * Potentially testing the compatibility of institutional theory and the resource-based view of the firm, researchers could examine whether the abilities to adeptly select what organizational attributes to imitate (e.g., avoiding the inimitable and poorly fitting elements), and to imitate them well, constitute a source of sustained competitive advantage.

Given that firms have considerable discretion in making compensation decisions, inquiry into what firm attributes affect the adoption of high risk pay plans may have implications for the competing theoretical frameworks and for compensation strategy. " Integral to this section has been the issue of diversification. Future research could consider the proposition that firms which can be characterized as following a resource-based view of the firm approach generate pay synergies while firms following more of an institutional theory path tend to diversify risk in their HR systems. * Similar to the suggested topic in the synergy section, the question of how much firms differ in assuming compensation risk would be of interest.

COMPENSATION PROGRAM SURVIVAL

As we have observed in the previous two sections, essential to fully addressing the concepts of pay synergies and risk is pay program survival, the third major research direction of this paper. A pay program that is discontinued after a short amount of time seems unlikely to generate any sort of positive return. Start-up costs are likely to include staff time, consultants' services, and a communication and administrative program. Additionally, there may be changes in other parts of the human resource system that will be adversely affected or disrupted by the premature discontinuation of a program. A plan that does not survive a certain amount of time will be unable to recoup the investment. Further, the opportunity costs with respect to employee and firm level criteria measures may be considerable. Other less obvious costs may also be damaging. Seeing the new program go down in flames may sour employees on future compensation and human resource interventions. The reputation and perceived acumen of the human resource department, and the subsequent power to pursue its goals, may be severely impaired. HRM could become less of a player at the strategic level. On an individual level, the careers of the compensation or human resource managers may have to bear the brunt of the aborted pay program.

Justice Perceptions and Survival

The survival of compensation programs may depend to a large extent on pay plan acceptance by the employees affected by the programs. Theories of organizational justice (Folger, 1987; Folger & Greenberg, 1985; Greenberg, 1990a; Lind & Tyler, 1988; Thibaut & Walker, 1975) suggest that the fairness of payments flowing from pay plans, the fairness of the formulas by which payments to employees are determined, and the fairness of processes surrounding implementation all matter to individual employees. Procedurally, the opportunity for employees to have input or voice regarding their pay system may improve responses to it in most cases (Folger, 1977; Hirschman, 1970; Greenberg, 1990b). In addition, high quality communication between employers and employees, in terms of features such as completeness, truthfulness, and sincerity, has potential to affect employee responses to pay plans (Bies, 1987; Greenberg, 1990b). Reports in the practitioner literature suggest other factors that may affect pay program survival. For instance, the early shelving of DuPont's profit-sharing plan was due in part to low payouts and employee discomfort with assuming risk in their pay (Santora, 1991). It should be noted that while support for the tenets of procedural and distributive justice have generally been found in the empirical literature, employee responses to particular processes and to particular pay plans may differ across organizations, contexts, and cultures.

There have been studies of policy introductions in the workplace from an organizational justice perspective that may be helpful to understanding the survival of pay plans. Greenberg (1994) performed a quasi-experiment of the introduction of a smoking ban in a workplace setting, in which he manipulated the content of communications delivered by the president of the company. One key finding was that complete information that indicated a sensitivity to those affected by the smoking ban resulted in a significant seven facility relocations and found that when employees received full explanations for the relocation decision, they indicated a stronger intent to remain with the organization than those who did not receive such an explanation. Graham (1995), using a policy-capturing design in a workplace setting, found that employee responses to two separate pay plan introductions were significantly improved when cash payouts accompanied the introduction. In addition, the results indicated that resentment to the pay policy introductions was reduced when there was an opportunity for management to review the policy for potential problems in the future, and when information was provided that the policy was widespread and endorsed in the organization's environment. In sum, it appears that process variables, such as employee input and plan communication, may, through justice perceptions, be significant factors in a pay plan's acceptance by employees and, ultimately, in its survival. Research on Program Survival

In the preceding section we observed that both the risk and expected returns associated with compensation programs were functions of the duration or survival rates of such plans. However, although researchers have begun to note the need to study pay plan terminations (e.g., Gerhart, Minkoff, & Olsen, 1995; Welbourne & Gomez-Mejia, in press), we know of no systematic analysis of the survival rates of various pay programs. Without this type of information, it is difficult to accurately estimate either the expected return or the risk associated with a compensation policy. Therefore, we suggest that the body of research on compensation may be lacking in that any research-driven predictions about compensation program success or failure are potentially misleading as a result of being based on an incomplete and perhaps biased sample.

As an illustration, recall our earlier example of two otherwise identical gainsharing plans whose only difference was that plan two contained a provision diffusing the middle management resentment that led to a high rate of first year terminations of plan one. Because investment costs are not recouped, early pay plan terminations produce low returns and, consequently, plan one exhibits both a lower expected value of and a higher variance in returns. So in this example, the lower risk choice is also the higher expected returns choice. Yet, because early terminations have not been included and are rarely even considered in the research literature,

even access to perfect information surrounding all other aspects of the plans would have yielded the conclusion that they were identical in terms of both risk and expected returns.

Before addressing the issue of how survival research on these program terminations should be approached, it is incumbent upon us to first ask whether it is reasonable to believe that the pay program discontinuation rate is high enough to warrant our attention. If the early termination of compensation plans is relatively infrequent, the effect of survival rates on risks and returns may not be of much consequence. However, the existing evidence suggests that the termination rate is sufficiently high to make survival analysis worthwhile.

Much of what little survival evidence exists comes from studies of work practices other than compensation or that include compensation initiatives as part of more sweeping changes. While there seems to be a large range in estimates of survival rates, this would be expected considering the survival time frame differences, alternate types of programs studied, and small number of studies. More important, it does appear that many programs are terminated within a relatively short time after implementation. A widely cited study by Goodman (1980) of an unspecified number of quality of working life (QWL) plans known to him to be at least 5 years old found that 75% were no longer functioning. Goodman, as well as Rankin (1986), further estimated that well over 50% of QWL programs do not survive beyond 3-5 years.

In a study by Drago (1988), 81 firms that had initiated a quality circle program were surveyed. Out of 81 firms, 23 (28%) that had embarked on the program between 1978 and 1984 had dropped the program by 1984. Unfortunately, information on the ages of surviving and terminated programs was not provided. Additionally, it is possible that the 16 firms that did not respond to the author's survey may have been more likely to have experienced program termination, which would result in an underestimation of the termination rate. This study is noteworthy in that it appears to be the only example in the organizational literature that specifically considers program survival as the dependent variable.

Eaton (1994) studied employee participation programs defined as involving "shop-floor workers in problem-solving and/or decision-making over workplace issues outside of collective bargaining" (p. 372). She found that 20 to 30 % of programs existing in 1987 no longer existed by 1990. Results indicated that management and union commitment to the programs were important determinants of survival, as was union perception of the labor relations climate. Her survey data indicated that while climate and commitment seemed to matter, the program design did not. This, however, does not imply that design did not matter for program success. Moreover, the design variables involved collective bargaining's role in participative decision-making and would not seem to have much relevance for new compensation programs.

Kochan and Osterman (1994) analyzed national establishment survey data with a sample of 694 and asked about use of teams, job rotation, total quality management, and quality circles. They defined a "significant user of mutual gains practices" as using two or more work practices that cover at least 50 % of core employees (p. 86). Using this definition, 36.6 % of the sample were "significant users of workplace innovations" (p.86). However, they then defined an establishment as having "sustained innovation" if the practice has been in place five or more years. Using their two practices criterion, only 13 % of the sample exhibited sustained innovations. Although they note that this could be because the innovations are recent, they describe this discrepancy between practice and sustainability as "striking" (p. 100). Indeed, they cite as a pessimistic estimate from their data that only about one third of the innovations are sustainable.

Unfortunately, the data in this study do not allow a precise estimate of sustainability. In one sense, the one third estimate is probably too low in that some of the innovations were recent and had not had a chance to progress 5 years. On the other hand, if establishments with enduring innovations were more likely to respond, the bias would work in the opposite direction. In describing the same data, Osterman (1994) reported a 66 % response rate to the survey. There is no description of how non-respondents differed on work practices. Because it is highly plausible that nonrespondents may have had a lower percentage of sustained innovative work practices, the Kochan and Osterman (1994) results could actually give an overly optimistic view of the degree of diffusion and sustainability. We also have no idea whether or not the two thirds of respondents with recent innovations had replaced earlier failed attempts at workplace innovation, further suggesting that their proposition that one third of innovations are sustainable could be too high.

Turning specifically to the compensation literature, there is only indirect evidence on the issue of program survival. However, the work practices literature implication that a substantial number of programs do not survive is reinforced. Kaufman (1992) surveyed 273 companies in 1988 that were known to have implemented Improshare programs between 1981 and 1988. Of the responding 104 companies (44%), 23% had discontinued the plan. Similar to the case in the Osterman (1994) study, we do not know how many of the nonrespondents had discontinued their Improshare plans, but speculate that they were probably more likely than the respondents to have done so.

Unfortunately, this is the only available compensation study which even indirectly addresses program discontinuation by providing survival information on a large number of plans. However, in studies of individual compensation interventions, there are anecdotal reports

documenting program demise. Furthermore, it is striking that many apparently successful programs have been discontinued. For example, Pritchard, Jones, Roth, Stuebing, and Ekeberg (1988) conducted an investigation of the effects of incentives, goal setting and feedback on productivity at an air force base over almost a two year period. Despite productivity gains of up to 75% when compared to baseline levels, the program was discontinued. The authors cited the arrival of a new manager who was philosophically opposed to such a system as a reason for the program's withdrawal.

Similarly, Petty et al. (1992) were unable to continue a program which had appeared to demonstrate impressive outcomes from an organizational incentive plan. In this study, one division of an electric utility company implemented a gainsharing plan and, compared to another division functioning as a control group, performed better on 11 of 12 objective performance measures, providing an estimated savings of between \$857,000 and \$2 million. Yet, the plan was discontinued because the unionized employees that comprised the other divisions felt inequitably treated.

The Petty et al. (1992) and Pritchard et al. (1988) studies point to the importance of contextual factors in program survival. While a program's design attributes may have a great deal to do with whether it meets the objectives set for it, such success does not appear to guarantee survival. In fact, in the Kaufman (1992) study of gainsharing plans, the programs that were discontinued had demonstrated productivity improvements almost as large as the ongoing plans.

An additional survival matter worthy of research attention is the issue of pay plans that are embarked upon but never implemented. While the question of whether these plans actually qualify as "terminated" or "discontinued" may be a philosophical one, the relevant point is that, like programs that survive only a short time, these cases still involve major losses to the firm. Similar to plans that are terminated early after implementation, the sunk costs can be considerable, including such factors as consultants and the staff time required to design and communicate the program. Additionally, there may be something more consequential about a program being terminated while still on the ground rather than meeting its demise shortly after being launched. It may be perceived as a larger failure because it did not even merit an attempt. Consequently, the threat to the careers of the program advocates and the losses in terms of employee and management support, respect, and confidence may be even more acute when the program never even gets off the ground.

The conclusion to be drawn from the compensation and work practices research is that many programs initiated by management do not survive. The impact of this conclusion is that

what we think we know about compensation program effects may be based in part on biased samples of pay plans. In the meta-analysis literature, the file drawer problem involves the possible bias resulting from the reliance on published studies that may have larger effect sizes than their unpublished counterparts (Hunter, Schmidt, & Jackson, 1982). In the case of compensation research, the equivalent of meta-analysis's file drawer may be the set of pay plans that have been discontinued and never make it into the empirical literature. Should this potentially considerable portion of compensation programs that were aborted differ systematically from surviving plans, selection bias is present and the research results indicating expected returns may be misleading.

Despite the evidence that apparently successful plans are discontinued (e.g., Kaufman, 1992), we might expect that unsuccessful plans are terminated at a greater rate and that there is a positive bias in the compensation literature. One wonders how the generally favorable reviews of profit sharing plans (e.g., Weitzman & Kruse, 1990) and employee stock ownership plans (e.g., Conte & Svejnar, 1990; Jones & Takao, 1993) might change if we could somehow account for the costs associated with all of the discontinued programs. Assuming the unsuccessful plans are more frequently discontinued, we would predict that these reviews overestimate the actual pay program returns.

However, it is important to differentiate between estimating returns and estimating relationship magnitude. The same assumption as above (i.e., that unsuccessful plans are terminated at a higher rate) would result in the probable underestimation of a linear relation between a design or contextual factor and the indicator of the program's performance. Take, for instance, the Gerhart and Milkovich (1990) study of the relation between percentage of variable pay in the overall pay mix and firm profits. Because we assume that firms with low profits would be more likely to drop the variable pay program, they would be less likely to appear in the study, creating restriction of range on the outcome variable. In a linear association, such low end range restriction on the outcome variable results in a flatter regression line through the data points and the subsequent regression coefficient of smaller magnitude (Berk, 1983). In our example, we would have underestimated the true effect of variable pay percentage on firm performance. This scenario also indicates that the effect of nondesign process variables (e.g., the extent of employee communication about the new plan or participation in its design) on plan success may be underestimated as well.

Even if compensation programs tend to be discontinued independent of success, the substantial costs associated with program implementation are probably impossible to recoup in the short term. A simple count of short term failures would at least allow us to crudely modify the

expected effect sizes and their variability. But a more systematic analysis of how often and why pay plans are discontinued, as is advocated here, would permit a formal, methodical adjustment to the magnitudes of risk and expected returns, as well as provide rich information about the context surrounding plan failure.

A Compensation Program Life Cycle?

To this point, we have operated under the implicit assumption that compensation programs are discontinued either because objectives went unmet or unanticipated consequences, such as middle management or union resistance, created unforeseen problems. A third possibility involves how the pay program might evolve over time. That is, is there a pay plan life cycle? It is possible that certain pay plans progress in a natural manner through stages from start-up to eventual decline. Should this phenomenon exist, it would have important implications for researchers and practitioners alike.

Although the possibility of a compensation program life cycle has not been investigated, such a phase approach to other work practices interventions has been discussed in the management literature. Lawler and Mohrman (1985) proposed a life cycle model for quality circles, listing six distinct stages through which quality circles pass, with each stage presenting its own threats to the program's survival. Should a quality circle survive each stage's threats, it would reach its natural decline stage and eventually "die". Lawler and Mohrman assert that virtually every organizational change intervention evolves through some such sequence of growth stages. In much the same way, Eaton (1994) suggested that employee participation programs may have a "natural half-life... after which they become increasingly difficult to maintain" (p. 375). In partial support of this idea, Drago (1988) found that older quality circles were more likely to be discontinued.

Extending the logic of Lawler and Mohrman (1985) and Eaton (1994) to the compensation function, it is conceivable that there is a pay program life cycle. That is, a discontinued program may not mean that the program was failing, or that middle management, excluded employees, or a new executive found fault with it. Through evading such threats to its survival, the program may have helped the organization to a certain point and, having served its purpose, been replaced by a fresh program deemed appropriate for helping take the organization to its next destination. An example might be a firm that starts a gainsharing plan and terminates a seemingly successful skill-based pay plan when many employees were about to top out on payable skills. In this case, the firm might be acting shrewdly rather than waiting for probable problems to emerge from employees with suddenly capped earning potential. Similarly, if the gainsharing plan is combined with empowerment, the skills need to be in place

before the motivation to find cost saving can translate into actual improvements. In other words, the skill-based pay plan would have served its purpose and reached its natural point of termination. Indeed, this type of strategic use of pay plan life cycles could be hypothesized as part of the reason for discontinued successful compensation programs.

Proposed Approach to Survival Research

Although studies of pay effectiveness do, in some cases, address the question of why programs "fail," the analyses usually do not go beyond reporting the frequency with which general sorts of issues are raised. For example, Gupta, Ledford, Jenkins, and Doty (1992), through a survey of skill-based pay users, were able to informally contact firms where the practice had been discontinued. The authors identified the following reasons for skill-based pay plan termination: inadequate management commitment, unwillingness to endure short term implementation problems, plan designs that increased labor costs without providing offsetting organizational benefits, conflicts between employees included in and excluded from the plan, inadequate training opportunities, and the failure of management to provide meaningful skill certifications prior to pay increases.

While this seems reasonable and we might speculate that similar reasons may be at the root of the discontinuation of other types of compensation programs, there is no research that directly confronts these issues. What we are calling for is a more systematic approach to understanding the survival probabilities of pay programs and strategies. This approach must recognize compensation plan survival as being a function of a set of elements including design attributes, justice perceptions, and other contextual conditions such as the fit/synergy with HRM and business strategy, company culture, and employee level characteristics (see Table 3).

Fortunately, statistical methods for effectively modeling failure and survival rates that have long been available (e.g., Kalbfleisch & Prentice, 1980) have been applied with increasing frequency of late to social science and management issues. In particular, the subject of turnover has lent itself well to survival analysis and serves as a guiding example for how this approach could be used to examine compensation program survival. Turnover's outcome of interest is, of course, whether or not an employee leaves the firm. Rather than simply utilizing a dichotomous dependent variable and performing logistic (logit) or probabilistic (probit) regression analyses, a number of recent turnover studies (Gerhart, Boudreau, & Trevor, 1995; Judge & Watanabe, 1995; Morita, Lee, & Mowday, 1989; Morita, Lee, & Mowday, 1993; Sheridan, 1992) have employed a proportional hazards rate model (Cox, 1972) to conduct survival analysis. This model defines the dependent variable as turnover probability conditional upon tenure, thus providing information not only on whether someone leaves the firm, but also when.

This type of information would be important in compensation as well, since it is not only the fact that a program is terminated that influences risk and returns, but also the length of time prior to termination. For instance, a seemingly successful incentive plan that is discontinued in the first year may never recoup the start-up costs or yield the magnitude of returns anywhere near those of the same plan discontinued in the fourth year. Thus, the separate probabilities of the incentive program surviving year one and year four would be of interest to us. Survival analysis provides the flexibility to examine this type of question as well as more complex issues.

The interpretation and implication of survival probabilities from the preceding example would be vastly different depending on the plan's success during its lifetime. The inclusion of indicators of success as covariates will allow inferences to be made concerning their impact on program survival. That is, we may be able to discern if the mechanisms behind successful program termination differ from those driving the demise of unsuccessful plans. In the turnover literature, such an approach has been used to draw a distinction between the causes of "functional" (low performer) and "dysfunctional" (high performer) turnover (e.g., Gerhart, Boudreau, & Trevor, 1995). Additional covariates could include design attributes and indicators of program fit with organizational and employee level characteristics. This approach would allow us to determine whether synergies would buffer the compensation program from termination through mutually reinforcing policies or place it at more risk due to the fragility inherent in tight coupling and increased interdependencies (Orton & Weick, 1990; Perrow, 1984; Weick, 1976), as discussed in the risk section of this paper.

Proportional hazards modeling would seem to be an effective statistical approach for studying pay plan survival (Note 5). The data preferable for applying this type of procedure would have to have several qualities. As the Osterman (1994) and Kochan and Osterman (1994) data on sustained workplace innovations clearly indicates, cross-sectional data has severe limitations for studying program survival. To provide a rigorous test of pay plan survival, the data will need to be longitudinal in nature. Ideally, the data set would include a large number of firms that had instituted various compensation programs during the same year. Data would be collected yearly on program continuation and a number of elements that will function as covariates. For example, success indicators such as firm or division profits and productivity would be tracked, as would employee behaviors (e.g., measurable performance, organizational citizenship behaviors) and attitudes (e.g., justice perceptions). Additional contextual factors of interest would include the external market, design attributes, plan administration and communication, and synergy with organizational and employee level variables. Such data, though difficult to acquire, would potentially reveal much to us concerning the survival of

compensation programs and, subsequently, the risk and expected returns involved with a compensation intervention.

Survival Summary and Suggested Research

Although pay plan survival could have an extremely large impact on expected returns and on risk, it has never been systematically addressed in the compensation literature. The costs associated with early plan termination are considerable. Piecemeal research indicates that a substantial number of pay plans are discontinued early in their existence. Moreover, because these plans have been so neglected, we tend to base all we know about compensation on the survivors, a potentially biased sample. Further, many of the terminated plans appear to have been successful, at least in terms of their official objectives, but we only have anecdotal data on why these (or any other) pay plans meet such an early demise. Employee justice perceptions join design attributes as possible factors in early terminations. A related issue, about which we know even less, is the matter of pay plans that are discontinued before being fully implemented. For future research on pay plan survival, we suggest the following: * Construction of a longitudinal data set for survival analysis, as described in this section, would be a major step forward. This would allow us, for the first time, to systematically address questions regarding what design attributes, process variables, firm characteristics, and employee level factors (e.g., justice perceptions) contribute most to plan termination. Further, we could investigate what types of pay programs tend to be discontinued at what ages. * It would also be of interest to examine the survival rates of pay synergies relative to those of individual pay plans. From a coupling perspective, this would allow pitting the mutual reinforcement of synergy components against Perrow's (1984) dangerous combination of high complexity and tight coupling. * A potentially interesting research area would be the comparison of the conventional beliefs surrounding pay plan effects (and perhaps even risk) to new estimates that account for terminations.

CONCLUSION

The preceding sections of this paper have described compensation program synergies, risk, and survival as three areas of pay research that we believe to be important to decision-making at the firm level. Moreover, we contend that the proposed research directions have the potential to not only add new knowledge to the field of compensation, but also to bring into question some of what we think we already know about the effects of pay in organizations. We have proposed institutional theory and a resource-based view of the firm as theoretical lenses for understanding the relationship between compensation and such concepts as synergies,

inimitability, sustained competitive advantage, legitimacy, imitation, best practices, risk, diversification, coupling, and survival.

In this paper, we have been more concerned with what we do not know about compensation than what we do know (or at least think that we know). Hence, our conclusions revolve more around future research than any synthesis of past work. The research suggestions at the end of the last three sections of the paper have outlined possible future investigations having to do with pay synergies, pay program risk, and program survival, respectively. Several of these questions are summarized in Table 4.

TABLE 4: Suggested Research Questions By Area

<u>SYNERGY</u>	<u>RISK</u>	<u>SURVIVAL</u>
<p><i>Organizational Factors:</i></p> <p>How much can organizations differ in their attainment of synergy?</p>	<p><i>Organizational Factors:</i></p> <p>How much can firms differ in the amount of risk they assume?</p> <p>What firm attributes contribute to the adoption of higher risk plans?</p>	<p><i>Organizational Factors:</i></p> <p>What pay plan attributes or organizational characteristics most influence pay plan survival?</p>
<p><i>Measurement:</i></p> <p>What are the alternatives for measuring synergy, and do the use of these alternatives produce different results?</p>	<p><i>Measurement:</i></p> <p>Is it possible to assign a risk indicator (such as beta in the finance literature) to various pay plans?</p>	<p><i>Measurement:</i></p> <p>If we can account for terminated pay plans, how much is conventional wisdom about pay plan effectiveness challenged (i.e., effect sizes)?</p>
<p><i>Strategic Choice:</i></p> <p>Do firms that follow the resource-based approach tend to synergize, and firms that follow an institutional approach tend to mimic and diversify?</p>	<p><i>Strategic Choice:</i></p> <p>How much more risk is involved with pay synergies than for single pay plans?</p> <p>Does this risk difference remain when survival is held constant?</p>	<p><i>Strategic Choice:</i></p> <p>Is there a greater survival rate for single pay programs than for synergies?</p> <p>What role does the degree of coupling play in plan survival rates between synergies and single pay systems?</p> <p>Is there a pay plan life cycle?</p> <p>What is the rate of pay plan death at various stages?</p> <p>Which pay plans tend to terminate earlier?</p>

In general, what we hope to be able to gain from pay synergy, risk, and survival research is a better estimate of what could be expected from various choices of compensation programs. From the synergy research, we may be able to learn if moving beyond the analysis of main effects is worth the effort. If, as we tentatively hypothesize and as would be predicted by the resource-based view of the firm, pay synergies do appear to make a difference in important organizational outcomes, then we can begin to design future pay research accordingly, emphasizing interactions in addition to main effects. Moreover, we could review and possibly revise the conventional wisdom stemming from the main effects research that has dominated until now. Eventually, we may be able to work toward characterizing the expected consequences of various pay plans in terms of a particular program's mean effect and its mean effect adjusted for the synergy (i.e., main effect plus interaction effect). Synergy research may also allow us to advise as to the efficacy of firms following a best practices approach, where fit concerns may be relatively straightforward (as in an institutional theory perspective), versus a synergistic system, where fit becomes a more complex goal in the pursuit of value creation and inimitability (as in the resource-based view of the firm).

Additionally, pay plan risk and survival research could allow us to begin to make further inferences that would provide better decision-making tools for organizations. A beta-type indicator of compensation program risk would provide valuable information such that firms considering pay program investments could select on the basis of the expected value of returns and on their estimated variance. Moreover, pay plan survival studies might not only yield data on why compensation programs fail, but could also provide further refinement of the estimates of both mean effect size and risk.

TABLE 5: Ideal Knowledge Base for Making Compensation Program Investment Decisions

Pay Plan	Pay Plan Mean Effect Size	Synergy Adjusted Effect Size	Survival Adjusted Effect Size	Pay Plan Risk (Beta)	Synergy Adjusted Risk	Survival Adjusted Risk
Plan ₁	ES ₁	S _y ES ₁	S _u ES ₁	B ₁	S _y B ₁	S _u B ₁
Plan ₂	ES ₂	S _y ES ₂	S _u ES ₂	B ₂	S _y B ₂	S _u B ₂
:	:	:	:	:	:	:
:	:	:	:	:	:	:
:	:	:	:	:	:	:
Plan _n	ES _n	S _y ES _n	S _u ES _n	B _n	S _y B _n	S _u B _n

Ideally, the types of research advocated here could facilitate a move toward the knowledge base that would be necessary to attempt to fill in Table 5. Such knowledge will undoubtedly remain to some degree beyond our grasp, but progress in that direction may begin to give us a more complete picture of the relation between pay and firm performance and the extent to which pay is of strategic importance. Furthermore, we contend that targeting compensation research toward synergy, risk, and survival might ultimately contribute to more informed organizational decision-making and a subsequent narrowing of the gap between research and practice.

NOTES

1. The primary theoretical foci of this article are the resource-based view of the firm and institutional theory, but there are two additional theories of firm behavior that deserve mention because they too may help illuminate choices regarding pay strategies in firms: resource dependence theory and population ecology theory. Resource dependence theory (Pfeffer & Salancik, 1978) highlights organizations' reliance on other entities with whom they exchange or interact. Dependent firms are more likely to choose pay systems or practices requested by or aligned with the organizations that have power over them. The greater the dependencies from such relationships, the more likely that organizations may respond to demands from those other entities. The aim of any firm, according to resource dependence theory, is to minimize uncertainties stemming from resource dependencies. Failure to respond to an entity on which a firm is dependent could result in a direct loss of resources.

Population ecology theory (Hannan & Freeman, 1984; 1989) emphasizes organizational inertia as a means to organizational survival. In other words, organizations that are reliable and accountable tend to survive. According to population ecology theory, we should see homogeneity across institutions, which implies that firms would have little discretion or opportunity for strategic behavior regarding pay plan choices. However, since the concept of inertia refers to internal cohesion, this theory may have some parallels with synergy and the resource-based view of the firm. Population ecology shares some theoretical ground with institutional theory in the sense that recent work, as mentioned earlier, suggests that firms that establish institutional linkages or achieve legitimacy in their environments are more likely to survive (Baum & Oliver, 1991). Hence, both theories predict some degree of pay homogeneity across organizations. Additionally, each would seem to imply less discretion and less strategic choice in compensation than would be the case under the resource-based view of the firm.

2. Actually, MacDuffie also used another approach to test for interactions (the existence of bundles). He formed a scale using the three scales described as HRM policies, work systems, and buffers. The new scale was called the production organization index and was either additive (the sum of the three scales) or multiplicative (the three scales were multiplied together). He then examined the incremental variance explained from adding either the additive or multiplicative scale compared to adding each of the original three scales individually. This, however, cannot provide any meaningful test of an interaction without also including each of the three original scales in the equation. Moreover, when one does so, the additive production organization scale cannot explain any additional variance since it is a linear combination of the three original scales.

3. Note, however, that Huselid's large sample size helped offset this decrease in power.

4. Of course, the cautions regarding the exacerbation of measurement error from using difference scores would apply here as well.

5. Proportional hazards modeling of survival analysis has the following methodological properties. First of all, it is partially parametric in that it does not impose any distributional assumptions on the data. It does assume, however, that hazard functions (i.e., the probability of program termination, conditional on program age) at different levels of an independent variable are proportional to some unknown baseline hazard function. Proportional hazards modeling's use of survival time (i.e., program age) is also advantageous in that it allows partial accounting for censored data, such as that which might result from a company in the data set that went out of business or closed down the division where the pay plan was in effect. Rather than incorrectly including this as a terminated plan or dropping it from the database, the model could incorporate

the fact that the program was not terminated anytime during its existence. Additionally, proportional hazards modeling makes allowances for changing values of variables over the investigation's duration through the use of time dependent covariates (Morita, Lee, & Mowday, 1993). These types of information can be lost in logit and probit approaches, which may ultimately contribute to results that conflict with those from survival analysis (Morita et al., 1993).

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