CHIEF EXECUTIVE OFFICER (CEO) RESPONSES TO CEO COMPENSATION EQUITY

By

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To my wife, Mary
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# TABLE OF CONTENTS

ACKNOWLEDGMENTS ........................................................................................................ iv

LIST OF TABLES ........................................................................................................ viii

LIST OF FIGURES ......................................................................................................... ix

ABSTRACT ...................................................................................................................... x

CHAPTER

1 INTRODUCTION and LITERATURE REVIEW ........................................................ 1
   Background ................................................................................................................. 4
   Framework of CEO Pay .......................................................................................... 4
   The Role of Equity ................................................................................................. 7
   Equity reactions and distributive justice ............................................................... 8
   CEO compensation inequity and comparisons .................................................... 14
   The Bases for CEO Compensation Differences ................................................... 18
   Agency theory and managerial capitalism .......................................................... 20
   Bases for CEO power ......................................................................................... 23
   Summary ............................................................................................................... 30

2 HYPOTHESES ...................................................................................................... 31
   CEO Reactions to Inequity .................................................................................... 32
   Organizational Growth ......................................................................................... 32
   Diversification ...................................................................................................... 35
   CEO Withdrawal ................................................................................................. 38
   Organizational Performance ............................................................................... 40
   Summary ............................................................................................................... 42

3 RESEARCH DESIGN .......................................................................................... 43
   Sample and Data Collection ............................................................................... 43
   Analytical Methods .............................................................................................. 43
   Variable Descriptions and Operationalizations ................................................ 44
   Independent Variables ....................................................................................... 44
   CEO compensation inequity ............................................................................... 44
   CEO power ....................................................................................................... 50
Dependent Variables .................................................................51
  Firm growth..................................................................................51
  Diversification................................................................................52
  Firm performance..........................................................................52
  CEO withdrawal............................................................................54
Control Variables...........................................................................54
  Industry.......................................................................................54
  Firm performance..........................................................................55
  CEO age.....................................................................................55
Summary........................................................................................55

4 RESULTS.......................................................................................57

Results of Analyses........................................................................57
  Change in Organizational Growth..............................................57
  Change in Diversification...........................................................58
  CEO Withdrawal .........................................................................59
  Change in Organizational Performance......................................60
Summary........................................................................................62

5 CONCLUSION..............................................................................63

Discussion......................................................................................63
  Theoretical Implications and Future Research.............................64
  Managerial Implications..............................................................67
  Limitations..................................................................................69
  Conclusion..................................................................................70

APPENDIX

A MODEL SPECIFICATIONS............................................................71

Model Specification of CEO Inequity ...............................................71
  Variables......................................................................................72
  Models.......................................................................................72
  Level – 1 (CEO)..........................................................................73
  Level – 2 (Industry).................................................................73
  Parameter Interpretations............................................................73
Model Specification of Tests of Non-Withdrawal Hypotheses...........76
  Variables......................................................................................76
  Models.......................................................................................76
  Level – 1 (Time)..........................................................................76
  Level – 2 (CEO)..........................................................................76
  Level – 3 (Industry).................................................................77
  Parameter Interpretations............................................................77
Model Specification of Tests of Withdrawal Hypotheses..................78
  Variables......................................................................................78
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 CEO Inequity on Change in Organizational Size</td>
<td>58</td>
</tr>
<tr>
<td>2 CEO Inequity on Change in Diversification</td>
<td>58</td>
</tr>
<tr>
<td>3 CEO Inequity on CEO Withdrawal</td>
<td>59</td>
</tr>
<tr>
<td>4 CEO Inequity on Change in Organizational Performance</td>
<td>61</td>
</tr>
<tr>
<td>5 Simple Correlation Matrix of Variables in the Operationalization of CEO Inequity</td>
<td>83</td>
</tr>
<tr>
<td>6 Simple Correlation Matrix of Variables Used to Test the Hypotheses</td>
<td>88</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A General Framework for CEO Compensation</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>CEO Inequity (ROA) X Ownership Structure on CEO Withdrawal</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>CEO Inequity (Shareholder Return) X Ownership Structure on CEO Withdrawal</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>CEO Inequity (ROA) X Ownership Structure on Change in Organizational Performance</td>
<td>61</td>
</tr>
</tbody>
</table>
Abstract of Dissertation Presented to the Graduate School of the University of Florida in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

CHIEF EXECUTIVE OFFICER (CEO) RESPONSES TO CEO COMPENSATION EQUITY

By

Eric Alan Fong

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Chair: Henry L. Tosi
Major Department: Management

This dissertation examines the interactive effects of CEO under- and overpayment inequity and CEO power (outsider ratio, duality, and ownership structure) on changes in firm size, changes in firm performance, changes in diversification strategy, and CEO withdrawal. Using variables from both the CEO compensation literature as well as the equity theory literature, I develop a measure of CEO under- and overpayment inequity and use this measure to test hypotheses concerning the above independent variables.

I tested the hypotheses using a sample of 1342 CEOs from 800 U.S. publicly traded corporations from 30 industries for the years 1990-1999. A multi-level methodology is utilized that allows for the specification of models that include factors at the time-, CEO-, and industry-levels necessary to test the hypotheses.

Results show that CEO under- and overpayment are related to changes in firm performance and CEO withdrawal and that CEO reactions are dependent upon the level of discretion they possess. This dissertation reveals that CEOs may react to compensation
relative to other CEOs similar to themselves by attempting to affect their situation to make their compensation more equitable. Also, CEOs with less discretion reacted in ways that are more beneficial to shareholder interests, which is they improve the performance of the organization; therefore suggesting that good governance matters.
CHAPTER 1
INTRODUCTION AND LITERATURE REVIEW

The compensation of top executives, specifically the compensation of the chief executive officer (CEO), has attracted a significant amount of attention from both the academic literature and the popular press. On one hand, much of popular press has focused on the excessive income that executives receive on the whole and in comparison to other employees in the organization, suggesting that executive compensation is unfair (e.g., Colvin, 2001; Reingold, 2000). On the other hand, the academic literature on CEO compensation has focused on how CEO compensation motivates CEOs to affect organizational performance and shareholder returns. However, both the popular press and academics alike have recognized a weak relationship between CEO compensation and organizational performance (Colvin, 2001; Tosi, Werner, Katz, & Gomez-Mejia, 2000).

For example, in a meta-analytic review of the empirical literature on the determinants of CEO compensation, Tosi and colleagues (2000) found that organizational performance accounted for less than 5% of the variance in CEO compensation. Thus, the research suggests that the compensation performance sensitivity for CEOs is rather small for an occupation in which compensation is expected to play an important motivational role.

In reaction to these findings, researchers have suggested that new directions should be examined to find alternative explanations for the CEO compensation and organizational performance relationship or that future studies should attempt to integrate new theories into the CEO compensation literature (Barkema & Gomez-Mejia, 1998;
Jensen & Murphy, 1990). With this in mind, work on CEO compensation has moved beyond the traditional economics-based frameworks by examining political (Zajac & Westphal, 1995), social (Geletkanycz, Boyd, & Finkelstein, 2001; O’Reilly, Main, & Crystal, 1988), and strategic (Rajagopalan & Finkelstein, 1992) factors. For instance, in high-technology organizations, where innovation and R&D are key variables to organizational success, CEO compensation is generally aligned with organizational innovation, which encourages CEOs to take risks to increase shareholder value irrespective of firm performance (Balkin, Markman, & Gomez-Mejia, 2000). In line with these suggestions made to examine new theories to help explain the relationship between compensation and organizational performance at the top management level, this dissertation focuses on issues concerning the CEO’s level of compensation equity and how CEO compensation equity will affect the performance of the organization and shareholder returns.

It is important to pay CEOs equitably for both CEO interests and shareholders interests because a CEO’s reaction to inequity can have a serious impact on the organization through the CEO’s strategic and personal decisions. Because the CEO possesses so much control within the organization, it is important to recognize that organizational decisions may be based on the self-interests of the CEO (Berle & Means, 1932; Marris, 1964) rather than being based on rational economic criteria (Child, 1972), which can have a major impact on shareholder returns. When individuals feel inequity it is in their own self-interest to reduce that inequity (Adams, 1965). Thus, CEOs may make strategic or personal decisions that can hinder or enhance the returns to shareholders.
based on the type of inequity felt (underpayment inequity or overpayment inequity) in an attempt to restore equity.

The amount of discretion possessed by the CEO may also have an effect on the CEO’s reactions to inequity because greater discretion, or power, for the CEO makes it easier for the CEO to assert his or her interests. Therefore, in situations where the CEO’s actions are not closely monitored, the CEO has greater opportunities to use personal influence to reduce inequity at the cost of the shareholders. For example, CEOs with greater power take policy actions, such as changes in diversification, which can lead to higher CEO compensation and status without benefits to the shareholders, more often than CEOs with less organizational power (Amihud & Lev, 1999).

This dissertation uses equity theory to further identify CEO interests that have been missing in the previous CEO compensation literature and introduces the idea that level of CEO compensation equity is an important factor to consider when compensation decisions are made for the CEO. In many instances the compensation structure does not motivate the CEO to do what is in the best interest of the organization because the compensation structure may lead to inequitable pay. Thus, CEOs facing inequity will be motivated to reduce that inequity; however, the type of inequity felt may lead to actions that will either increase or decrease shareholder wealth. On the other hand, CEOs who do not face inequity may be less apt than those facing inequity to perform the same actions that do or do not benefit shareholders because they have little interest in performing actions to make the situation equitable. Furthermore, the CEO’s reaction to inequity will depend on the power he or she possesses within the organization because power gives the CEO greater discretion over the actions of the organization.
The remainder of this chapter will further detail my argument that the level of CEO compensation equity matters. Further, this chapter will review the equity theory literature, CEO compensation literature, and the literature on power. Chapter 2 will focus on deriving hypotheses for CEO reactions to underpayment and overpayment inequity. Chapter 3 presents an empirical test of the hypotheses using hierarchical linear modeling. The final two chapters contain the results and discussion of the findings and future research opportunities.

Background

Framework of CEO Pay

The determination of CEO compensation can be seen as a complex process that involves many factors beyond that of just organizational performance, such as the CEO’s influence over compensation consultants (Tosi & Gomez-Mejia, 1989) and ownership structure (Hambrick & Finkelstein, 1995), among other things. For this reason the CEO compensation literature has focused on more than just organizational performance as a determinant for pay. Using the previous research on executive compensation, a general framework for understanding the determinants of CEO compensation can be created.

As seen in Figure 1, the determinants of CEO pay can be grouped in terms of three broad categories: criteria, governance, and contingencies (Barkema & Gomez-Mejia, 1998). This framework will not only help explain the previous direction of CEO compensation, but will also help in the development of hypotheses later on in this dissertation.

Criteria. Even though a large number of studies have examined the pay to performance linkage between organizational performance and CEO compensation, the relationship between the two has been found to be small (Tosi et al., 2000). It has been
suggested that these results are the product of CEO compensation being based on other criteria such as organizational size (Tosi et al., 2000), the managerial labor market (Finkelstein & Hambrick, 1989), positions held by the CEO (Hill & Phan, 1991), or individual characteristics (Gomez-Mejia & Wiseman, 1997; Westphal & Zajac, 1994). These criteria play a major role in whether a CEO may or may not decide if he or she is facing an inequitable situation. Furthermore, to restore equity, the CEO may manipulate some of these factors. For example, Tosi and colleagues (2000) found that a significant and positive relationship between organizational size and CEO compensation; thus, it is in the CEO’s interest to increase the size of the organization when attempting to influence his or her compensation.

**Governance.** The decision as to how much an executive should be paid is based not only on the above criteria, but also on the individuals making that decision. The compensation committee (Ezzamel & Watson, 1998; O’Reilly et al., 1988), ownership structure (Hambrick & Finkelstein, 1995; Tosi & Gomez-Mejia, 1989), market for corporate control (Jensen, 1983), and size of executive team (Eriksson, 1999) influence how much an executive is paid. For example, Hambrick and Finkelstein (1995) found that the overarching philosophy of CEO pay in organizations was related to whether the organization was management-controlled (no single major owner exists) or externally controlled (where a major outside owner exists). In those instances where no major owner exists, the organization takes on a maximization of CEO pay philosophy. On the other hand, when there is a major owner the organization takes on a minimization of CEO pay philosophy. These findings could be linked to the fact that ownership structure is an indicator of CEO power in the organization and with greater power, the CEO has greater
discretion, which allows the CEO the ability to pursue his or her own interests. The implications of CEO power will be discussed later in this chapter.

Figure 1. A General Framework for CEO Compensation

**Contingencies.** Much of the research on compensation strategies rests on the notion that the effectiveness of a compensation system depends on whether the pay practices are consistent with the internal and external conditions facing the organization. The essential logic to this contingency approach to CEO compensation follows three assumptions (Gomez-Mejia & Balkin, 1992): (1) different pay policies and practices are required for a diverse environmental conditions, organizational strategies, and firm
characteristics; (2) the relative effectiveness of different pay policies and practices varies across contexts; and (3) lower performance will occur with significant deviations from the ideal compensation profile that would be most appropriate given a firm’s environmental conditions, organizational strategies, and firm characteristics.

Thus, such factors such as organizational strategy (Finkelstein & Boyd, 1998; Sanders & Carpenter, 1998), industry, and R&D level (Balkin, Markman, & Gomez-Mejia, 2001) play a major role in CEO compensation. For instance, from an organizational strategy perspective Sander and Carpenter (1998) found that as an organization’s internationalization increased, the CEO’s compensation also increased, which means the organizational strategy played a critical role in the compensation of the CEO. In addition, many researchers have focused on other major strategic contingency factors, such as diversification, that can affect CEO compensation (e.g., Kerr, 1985; Napier & Smith, 1987; Salter, 1973).

**The Role of Equity**

Equity plays a large role in the development of incentive contracts because compensation is a means for individuals to make equity comparisons. One of the key means of controlling CEO action to act in shareholder’s interests is to align a CEO’s compensation with that of the performance of the organization. This, in turn, reduces the disparity between shareholder interests and CEO interests; however, from an equity standpoint, for the disparity of interests to be reduced through incentive alignment, a CEO’s compensation most appear equitable to the CEO.

The compensation committee, which is made up of a small subset of the board of directors, usually creates the compensation contract for the CEO. In general, the compensation committee bases this contract on the pay of other CEOs who are
supposedly similar to the focal CEO and the pay of individuals on the compensation committee (O’Reilly et al., 1988). Additionally, there are many other variables that may be factored into the compensation decision; for example, human capital variables that the compensation committee may take into account, such as age, tenure, and experience.

However, the creation of the compensation contract and the cause of inequity are not the issues. Whether CEO is actually under- or overpaid in relation to his or her peers after accounting for variables from both the strategy (i.e. organizational size, industry, etc.) and equity literatures (i.e. age, experience, etc.) is of importance because of the reactions the CEO may take to restore equity. Although a CEO’s pay may be aligned with the interests of the shareholders, if the CEO is inequitably paid as compared to his or her peers when following the incentive contract, as specified by agency theory, the CEO may take actions that reduce that feeling of inequity. Whether the CEO is under- or overpaid will determine whether those actions will benefit the shareholders, the CEO, or both shareholders and CEO.

**Equity reactions and distributive justice**

Homans’ (1961) theory of distributive justice states that when individuals who are in exchange relationships with one another obtain profits proportional to their investments, there is distributive justice. Adams (1965) introduced equity theory and further derived the theory of distributive justice using a social exchange theory framework. Like equity theory, distributive justice is realized when one individual’s outcomes and inputs ratio is equal to a comparison others’ outcomes and inputs ratio. When the ratios are unequal, then each individual will feel some form of injustice or inequity.
However, it should be noted that distributive justice and equity theory are not the same. Leventhal (1976) suggested that distributive justice is more than just equity. Distributive justice, according to Leventhal, not only includes an equity rule, but also incorporates a needs rule, which dictates that persons with greater need should receive higher outcomes, and an equality rule, which dictates that everyone should receive similar outcomes regardless of needs or contribution. In essence, justice would exist whenever the appropriate norms are followed in an allocation decision. Thus, in some cases those norms would be equity, but in others cases those norms could be equality or need.

Yet, regarding CEOs who are individuals that make a great deal of money, there is little reason to believe that these individuals would feel one CEO would “need” more money than another CEO. Leventhal (1976) also argued that equity was the appropriate norm for cases where productivity was the key goal. Furthermore, the managerial capitalism literature suggests that CEOs are interested in such things as status and power (Marris, 1964), which suggests they are not interested in equality. Because CEOs are interested in status and power it would seem that they should care that those in larger and better performing organizations should be paid more highly. Thus, when comparisons are made between CEOs, the reasonable norm to be followed is that of the equity norm. Therefore, rather than focus on distributive justice as a whole, the focus of this dissertation is on equity theory and not distributive justice when the concern is CEO compensation.

The pioneering work on equity theory by Adams (1963, 1965) was derived from analyses of behavior in employer-employee relationships. According to Walster,
Berscheid, and Walster (1973) the nature of equity theory, with its emphasis on social comparisons, as well as its focus on outcomes (rewards) and inputs (contributions) makes it particularly well suited to study workers’ reactions to compensation. Although inequity can exist in any social situation (Adams, 1965), this dissertation concerns CEO compensation inequity and will focus only on manager and stockholder exchanges.

Inequity exists when one individual’s outcome/input ratio differs from a comparison other’s outcome/input ratio. Inputs can be anything that an individual brings to his or her job (Adams, 1965). For example, education, intelligence, experience, training, skill, sex, ethnic background, effort, etc. are all inputs, which can be seen by the board of directors as human capital that the CEO brings to his or her position. Outcomes, on the other hand, include pay, rewards, benefits, and anything else an individual may find valuable that he or she gains from providing inputs.

The emphasis in equity theory rests on the notion that individuals can feel either underpayment inequity or overpayment inequity. When underpayment inequity exists, an individual feels deprivation and will experience anger or dissatisfaction (Adams, 1965; Homans, 1961). On the other hand, if an individual feels inequity due to overpayment inequity, then the individual will feel guilt (Adams, 1963; Adams, 1965). Not only does inequity cause a feeling of deprivation or guilt, it also creates a tension in the individual that is proportional to the magnitude of inequity felt by the individual (Adams, 1965). In turn, this tension will motivate the individual to eliminate or reduce the tension. However, this motivation to reduce the tension will be proportional to the amount of tension felt. Thus, an individual that feels tension due to inequity will be motivated to reduce that inequity and the more inequity the individual feels the more motivated he or
she will be to reduce that inequity. An individual can reduce this tension a variety of ways, which includes rationalizing his or her inputs or outcomes through psychological distortion as well as by altering his or her inputs or outcomes to restore equity.

According to Adams (1965), when an individual attempts to restore equity through psychological distortion that individual modifies or rearranges his or her cognitions in an effort to reduce perceived incongruities. Thus, to restore equity an individual will psychologically place greater value on his or her own inputs or outcomes or less value on his or her comparison’s inputs or outcomes. For example, an individual may alter the importance and/or relevance of a specific input, like age, to restore equity. Concerning changes in inputs and outcomes, in order to restore equity through inputs an individual may put forth more or less effort, even going as far as to withdraw completely from his or her position. To restore equity through outcomes an individual may attempt to increase his or her compensation, even through theft (Greenberg, 1990).

**Overpayment inequity.** Research on equity theory has found that individuals do, in fact, attempt to change their inputs to reduce the amount of overpayment inequity felt (Adams & Rosenbaum, 1962; Adams & Jacobsen, 1964; Brockner et al., 1986; Greenburg, 1988). However, in cases of overpayment inequity there is little reason to believe that individuals will attempt to change their outcomes (Adams, 1965). Adams points out that although reducing outcomes is a feasible action to restore equity, there is no good evidence that individuals will use this as a means of restoring equity. In general, individuals do not want to give up such things as higher pay as well as larger offices and, instead, would rather change their inputs (i.e. work harder), or possibly distort their inputs, in an attempt to reduce the feeling of inequity. This suggests that when it comes to
CEOs, instead of reducing their outcomes to reduce inequity, CEOs will attempt to change their inputs, or possibly distort their inputs, to reduce inequity. For example, Adams and Jacobsen (1964) found that when individuals felt overpayment inequity they attempted to change their inputs by increasing their quality of work. Adams and Jacobsen examined individuals performing a proofreading task when in an overpayment inequity situation versus an equitable situation. In the overpayment inequity condition, participants were made to feel as if they were less qualified than the average proofreader, but that they would be paid the standard proofreader’s rate. In the equitable condition, participants were made to feel the same way, but paid a reduced rate to reduce the inequity felt. Those individuals in the high inequity group performed significantly better than the low inequity group. Additionally, in another overpayment inequity study, Greenberg (1988) found that when managers that were assigned to offices of higher status than their position warranted increased their performance. Those individuals who felt overpayment inequity increased their inputs to match that of their outcomes (the higher status offices).

Furthermore, Brockner and colleagues (1986) found an increase in performance from workers that were not let go after a downsizing. In this instance the researchers used an experimental condition in which workers were laid off randomly (unfairly) or based on production (fairly). The results indicated that the survivors of the layoffs, those individuals that were not laid off, worked harder if they felt their peers were laid off unfairly. The survivors of the layoffs felt inequity because their outcomes were greater than that of the individuals that were laid off, but their inputs were not necessarily greater when the layoff occurred. When those individuals feeling inequity compared themselves
to those individuals that were terminated, they may have perceived some guilt because of the highly negative outcome for those terminated.

**Underpayment inequity.** In each of the above cases the individuals felt overpayment inequity, that their outcome/input ratio was greater than that of other individuals in a similar position. When underpayment inequity is felt individuals have the opposite reaction; rather than increasing their inputs, they may attempt to reduce them or psychologically distort their own outcomes as well as their referents outcomes to restore equity. For example, concerning the increase in inputs, Cowherd and Levine (1992) found that when lower level workers salaries were inequitable compared to that of their managers, the workers put forth less effort in terms of the quality and quantity of their work. Furthermore, Greenberg (1990) found that when individuals experienced a pay cut they were more likely to leave the organization; therefore totally withdrawing their inputs. Additionally, Greenberg (1989) found that workers who were forced to take a pay cut and remained on the job elevated the perceived importance of the work environment features as contributors to their overall payment equity. Thus, They distorted their outcomes to restore equity.

Similar to that of overpayment inequity, if psychological distortion is not used, individuals feeling underpayment inequity are more likely to attempt to change their inputs rather than that of their outcomes because people have more control over their inputs (Cowherd & Levine, 1992). Although this may be true, research has suggested that individuals do attempt to change their outcomes if given the opportunity. For instance, Greenberg (1990) examined pay cuts in manufacturing plants and found that there was a significant difference in the amount of theft that occurred in a manufacturing plant that
endured a pay cut versus a control plant that did not endure a pay cut. Using longitudinal data, Greenberg found that both before and after the duration of the pay cut, both plants did not differ in terms of the amount of theft that occurred. However, during the time period of the pay cut there was a dramatic increase in the amount of theft that occurred in the experimental plant. This increase in theft was not found in the control plant. Theft, in this instance, was the mechanism used to reduce the perceived inequity because the individuals in the reduced pay condition increased their outcomes through theft.

**CEO compensation inequity and comparisons**

As mentioned earlier, when an individual perceives inequity, the individual making the comparison is motivated to reduce the perceived inequity (Adams, 1965). In the case of a CEO, inequity would occur if the CEO’s outcomes to inputs ratio was dramatically different in relation to that of his or her peers (CEOs in other organizations). A reduction in inequity would occur if there were a change in compensation (outcomes) or a change in the amount of effort (inputs) put forth by the CEO. Thus, a CEO experiencing inequity may be motivated to influence factors that affect his or her pay in an attempt to restore equity or to withdrawal from the situation entirely.

For instance, CEO compensation has been associated with such things as organizational size, the compensation of the compensation committee, and the size of the top executive team (Barkema & Gomez-Mejia, 1998; Ciscel & Carroll, 1980; Gomez-Mejia, Tosi, and Hinkin, 1987; Lazear & Rosen, 1981; O’Reilly et al., 1988; Rosen, 1986); therefore, CEOs may attempt to influence these, and possibly other, factors that may restore equity. However, what the CEO is motivated to do to restore equity may not necessarily benefit the shareholders. For example, organizational size is related to CEO compensation (Gomez-Mejia et al., 1987; Tosi, et al., 2000), but size is not necessarily
beneficial to organizational performance. Thus, a CEO may attempt to increase the size of the organization to restore equity at the cost of the shareholders’ interest. The effort and assets put forth to increasing organizational size could have been used to increase organizational performance or returned to shareholders in form of dividends.

Furthermore, the level of CEO compensation equity may influence factors such as CEO withdrawal and diversification. For example, as Adams (1965) points out, withdrawal is one means of restoring equity; thus, CEOs who face underpayment inequity may be more likely to withdraw from the organization than CEOs not facing inequity. Additionally, CEOs who face overpayment inequity may be less likely than equitably compensated CEOs to withdraw from the organization, or CEOs who face underpayment inequity may be more likely than equitably compensated CEOs to use diversification to grow the organization.

The equity literature approaches equity from an intra-personal perspective, focusing on comparisons between individuals within the same organization, rather than an inter-personal perspective, focusing on comparisons between individuals in different organizations holding similar positions. Furthermore, most of the equity theory research focuses on lower level employees, which, in turn, makes it very easy to focus only within the organization because, in general, there are many lower level employees working in similar positions to make comparisons with. However, when it comes to CEOs there is little reason to believe that they will make comparisons with other top managers in the organization because there are few similarities between them other than the fact that they work in the same organization. For example, shareholders are more apt to hold the CEO responsible for the performance of the organization, which creates greater risk for the
CEO compared to other top management. Thus, the reason why so many academics focus on the relationship between the CEO and organizational performance is because the CEO is viewed as the individual most accountable for the performance of the organization.

Furthermore, the CEO may bring greater human or social capital to the organization than other top-level managers (Eisenhardt & Schoonhoven, 1996; Geletkanycz, Boyd, & Finkelstein, 2001; Geletkanycz & Hambrick, 1997). For instance, Geletkanycz and colleagues (2001) found that a CEO’s social or network value is important to the organization because the network brings resources that can be helpful. There is little reason to believe that other top management’s network value is equivalent.

However, CEOs from different organizations share similar characteristics with one another in the respect that they carry similar responsibilities. Equity theory states that individuals will choose those similar to themselves to make comparisons; thus, when it comes to the CEO there is reason to believe that comparisons would be made between the focal CEO and CEOs in other organizations. There is little doubt then when judging one’s own performance, comparisons are made with individuals that are similar.

However, when considering managerial ability and performance, comparisons with similar individuals becomes imperative because of the complex causes of organizational outcomes (Porac, Wade, & Pollock, 1999); therefore, for a CEO to decide if he or she is performing adequately that person must make comparisons to other CEOs and not managers within the organization.

To make comparisons, the CEO must look to other organizations to find someone of equal stature. Because the CEO plays a role in the performance of the organization, he or she will likely compare their organization’s performance to that of others in his or her
industry and possibly beyond that. Additionally, CEOs are likely to compare their compensation to CEOs in other organizations; thus, these comparisons may lead to inequity, which may motivate CEOs to restore equity.

The means by which CEO compensation is set may also play a role in the equity comparisons that CEOs make. The literature in both the business press and the academic arena has focused on the role that the board plays on CEO compensation, the comparisons the board makes with rival CEOs to determine compensation (e.g., Lavelle, 2001; O’Reilly et al., 1988; Porac, Wade, & Pollock, 1999). The compensation committee, which is made up of a small subset of the board of directors, plays a crucial role in the determination of CEO pay by drawing up the compensation package, which is later ratified by the whole board. However, the compensation committee may not be the only individuals making comparisons with other executives to determine what they believe to be equitable compensation for their CEO. It would be reasonable to suggest that CEOs make similar comparisons with other CEOs, and not necessarily the same CEOs the compensation committee makes comparisons with, to determine the level of compensation equity of their pay. For instance, O’Reilly and colleagues (1988), using social comparison theory, suggest that the determination of CEO pay may be based on social comparisons made by the compensation committee. The compensation committee appears to set CEO pay by comparisons with their own individual salaries and those of CEOs they believe to be similar to the CEO being compensated. Hence, because the compensation committee makes these comparisons, it would seem reasonable to suggest that CEOs may make similar comparisons with other CEOs to determine if the compensation committee created a fair compensation contract.
Social comparison theory proposed by Festinger (1954) underlies much of the research in equity theory (e.g., Adams, 1965; Walster, Berscheid, & Walster, 1973). Research on equity theory suggests that individuals make comparisons with others they consider similar to determine whether the situation they have encountered is equitable or just (Adams, 1965). When an individual encounters a situation that he or she finds inequitable, that individual is motivated to make it equitable. According to Goodman (1974), individuals are likely to choose other individuals that have similar attitudes or abilities, which suggests that CEOs will select other CEOs similar to themselves in terms of their individual ability and the situation they face to make equity judgments.

The Bases for CEO Compensation Differences

Although the above research may suggest that compensation committees are attempting to make CEO compensation equitable by making comparisons with other CEOs, there are not any reasons to believe that CEOs are making the same comparisons that the compensation committee makes because CEOs do not necessarily have to see eye to eye with the compensation committee on their decisions. However, even if CEOs were to make similar comparisons to that of the compensation committee, a more important reason why CEO compensation may differ may be because the compensation committee relies on outside consultants’ recommendations on setting a CEO’s pay (Tosi & Gomez-Mejia, 1989; Williams, 1985). The use of compensation consultants can be problematic because the CEO, through contact with the consultants, may influence the compensation package, which would result in a package that varies from what other CEOs may be receiving.

Williams (1985) suggests that consultants “rely upon the good graces of the chief executive for their livelihood.” Since consultants are generally hired by management, it is
in the consultants’ best interest to perform actions that would lead to return engagements. Tosi and Gomez-Mejia (1989) found that CEOs were, in fact, able to influence consultant recommendations in manager-controlled organizations, which suggests that a CEO’s pay may not be as strongly related to other CEOs’ pay or as strongly related to organizational performance as one would like to believe. Therefore, when it comes to equity comparisons, CEOs would be making comparisons with others that do not necessarily have similar compensation packages due to the CEOs influence on his or her own compensation. Tosi and Gomez-Mejia’s (1989) findings also suggests that managerial discretion plays a role in CEO pay differences, which has been further substantiated by Finkelstein and Boyd (1998).

Much of the CEO compensation literature, through agency theory, focuses on the issue of discretion. In essence, the literature focuses on the extent to which CEOs are held accountable to shareholders for the compensation they receive and the amount of discretion the CEO has to perform actions that help or hinder shareholder returns. As evidence that CEOs may be receiving inequitable pay, the findings of studies on CEO compensation as a mechanism to reduce discretion are very inconsistent. For example, Finkelstein and Boyd (1998) found correlations of .13 and -.03 between return on equity with CEO cash compensation and long-term pay. Furthermore, Johnson (1982) found a correlation of .003 between return on equity and CEO compensation. On the other hand, some researchers have found rather large correlations between organizational performance and CEO compensation. For instance, Belliveau, O’Reilly, and Wade (1996) found a .41 correlation between return on equity and CEO compensation. Hence, it is
clear that CEOs are receiving disparate compensation packages, which could lead to inequitable pay between CEOs.

**Agency theory and managerial capitalism**

When it comes to CEO compensation inequity, both the literature on agency theory and managerial capitalism clarify the importance of CEO compensation and help to explain the different reactions CEOs can take concerning inequity through the varying discretion each CEO possesses. Both theories focus on the actions that shareholders can take to reduce opportunism, which is very important from an underpayment inequity standpoint because a CEO may be more inclined to act opportunistically when inequitably underpaid. Furthermore, the different views that the theories take on the role of compensation, as well as monitoring, as a means of controlling CEO actions may result in the differing compensation packages that CEOs receive, which leads to the inequity in the first place. For example, Finkelstein and Boyd (1998) suggest that differences in CEO compensation can arise from differences in discretion.

The agency theory model. In the agency model, one of the key agency problems that shareholders face is moral hazard, which is the misuse of firm resources by the CEO that caters to the CEO’s interests. Concerning equity, moral hazard becomes a greater concern than described by agency theory when CEOs feel underpayment inequity because CEOs may be more likely than usual to use firm resources to increase their pay to restore equity. The means of controlling moral hazard from an agency standpoint occurs through governance mechanisms such as monitoring and incentive alignment (Baiman, 1982; Tosi et al., 2000).

According to Rediker and Seth (1995), incentive alignment is an integral part of the governance mechanisms that ensure profit maximization because incentive alignment
plays a major role in controlling moral hazard. By aligning a CEO’s pay with the interests of the shareholders, the CEO will also benefit when performing actions that are in the best interests of the shareholders (Gray & Cannella, 1997; Jensen & Murphy, 1990); therefore reducing the occurrence of moral hazard. However, if incentive alignment leaves the CEO underpaid in comparison to his or her peers, the CEO may feel inequity and attempt to correct for that inequity in ways not necessarily beneficial to the shareholders. The argument is that an optimal compensation contract should be based not only on the principal’s objectives, but also on any factors that provide additional and useful information in assessing the agent’s unobservable choice of action (Holmstrom, 1979, 1982), which in this case is inequity.

The agency theory literature (Jensen & Meckling, 1976; Ross, 1973) has focused not only on control through compensation, but also control through the narrowing of alternative actions through monitoring by the board of directors (i.e. reduce of power and discretion) (Fama, 1980; Fama & Jensen, 1983; Jensen, 1983). According to Mizruchi (1983), the board has the ultimate control due to the ability to hire and fire the CEO. Because the CEO’s actions are being closely observed, his or her actions should reflect the interests of the shareholders and thereby reduce moral hazard.

Another way to look at monitoring is that the amount of discretion, or power, afforded to a CEO is inversely related to the amount of monitoring the CEO faces. Thus, high monitoring leads to less power for the CEO, while low monitoring leads to greater power for the CEO. The board of directors serves as a means of reducing CEO discretion, which reduces the CEO’s opportunity to use organizational resources to pursue his or her own agenda (i.e. reducing moral hazard). This is important in underpayment inequity
situations because the CEO is motivated to use organizational resources for his or her own means and, in turn, monitoring reduces the CEO’s opportunity exploit those organizational resources for his or her own advantage.

**Managerial capitalism model.** While agency theorists believe that the board is the primary means of controlling the CEO, managerial capitalists believe ownership is the most effective control mechanism (Hunt, 1986). From the managerial capitalist viewpoint, CEOs have a great deal of discretion over the nomination of board members, which leads to the nomination of individuals that the CEO sees as his or her allies and reduces the boards’ power to monitor. Therefore, the means by which a CEO’s discretion is reduced is by monitoring from strong owners. Tosi and Gomez-Mejia (1989) provide evidence that CEOs in situations where they possessed discretion based on ownership structure were able to affect their own compensation through consultants, which suggests that the board’s affect on incentive alignment is minimal. This suggests that ownership structure has an effect on CEO discretion and, in turn, may suggest that CEOs have the discretion to affect their compensation when faced with inequitable compensation.

In addition, managerial capitalists suggest that the aligning of incentives will not lead to control because the CEO’s utility function consists more than just salary. Marris (1964) suggests that CEOs are also interested in factors such as power and status (Marris, 1964), which suggests that CEOs are not only concerned about their compensation, but also such things as their social status. This indicates that the CEO will pursue growth whether incentives are aligned or not because of the positive relationships between organization size and salary, power, as well as status (Tosi, et al., 1999).
However, as Goodman (1974) points out, compensation is a means for individuals to not only acquire goods, but it is also a signal of achievement, recognition, and potential enhancement of self-esteem. Therefore, equitable pay should be of great concern and interest to CEOs from a managerial capitalist perspective because it is a sign of status. Thus, equitable pay is a factor overlooked in the CEO compensation literature, agency literature, and managerial capitalist literature.

**Bases for CEO power**

A CEO’s reaction to inequity will be based on his or her personal interests, which may be more easily asserted when the CEO has a high level of discretion or power. Thus, power is a very important variable when it comes to CEO compensation inequity. Power is defined as the capacity of individual actors to exert their will (Finkelstein, 1992; Hickson, Lee, Schneck, & Pennings, 1971; Pfeffer, 1981). According to Salancik and Pfeffer (1977), power may be understood as the ability to bring about desired outcomes and, in terms of managerial discretion, power is seen as the latitude of managerial action within the organization (Hambrick & Finkelstein, 1987).

When it comes to CEO power, CEOs are more than willing to use their power or influence to suit their own purposes. For instance, Westphal (1998) found that as structural board independence increased, a manager’s tendency to use tactics such as persuasion and ingratiation increased as a means of circumventing the increased monitoring. Structural board independence, a proxy for monitoring, was measured as the outsider ratio on the board of directors, whether the CEO was also the director of the board (CEO/board chair duality), CEO-board friendship ties, and demographic distance between the CEO and board. This study found that greater structural board independence is associated with increases in diversification and compensation rather than less
diversification and compensation. According to Westphal (1998), this increase in diversification and compensation occurred despite increased monitoring because managers were able to use their interpersonal influence to mediate the effects of a structurally independent board (a strong board). In addition, Hill and Phan (1991) found that as CEO tenure increases, there is greater influence over compensation through such things as organizational size and risk, which suggests that managers were better able to circumvent board monitoring and incentive mechanisms as CEO influence increased.

In the events described above, it is clear that CEOs use their influence for their own purposes, even in situations that do not necessarily appear to afford them power (i.e., having a strong board). However, powerful CEOs have more opportunity to use their influence and powerful CEOs may be more likely to use that influence to perform actions that benefit them if they feel inequity in comparison to CEOs similar to themselves. Powerful CEOs may react, depending upon the type of inequity felt, by changing their compensation without putting forth more effort or put forth more effort without attempting to change their compensation. In addition, these CEOs may reduce their effort if they are underpaid, which may lead to reduced organizational performance.

Thus, when a CEO faces inequity, his or her reaction to that inequity is dependent upon the power he or she possesses in the organization. CEOs with higher power may more easily enact means of increasing their pay than those with less power. For example, when CEOs face underpayment inequity, equity theory would state that CEOs could reduce their inputs or attempt to increase their outcomes to restore equity. CEOs with greater power will be more likely to perform actions that are related to increasing their outcomes than CEOs with less power because they are afforded the discretion to perform
actions such as increasing organizational size through diversification. On the other hand, CEOs with less power may choose to reduce their inputs because they are not afforded the discretion needed to change their outcomes. For instance, they may withdraw from the organization.

Power has a great deal of consequence in organizations because those individuals within the organization that possess power can make decisions concerning resource allocations, administrative succession, structures, and strategic choices (Child, 1972; Pfeffer, 1981). Ultimately, these organizational decisions will affect organizational performance and returns to shareholders, which means that it is important that those individuals in power do not make decisions that benefit themselves, but benefit the shareholders. According to Mintzberg (1983), other than the board of directors, no individual or group is thought to exert as much influence on the structure and conduct of the organization as the CEO.

Thus, power can play a very important role in terms of the actions that a CEO may take if faced with inequity. The power a CEO possesses within the organization is based on multiple factors such as the ownership structure, the ratio of outside directors, and whether the CEO also holds the position of chairman of the board.

**Ownership structure.** According to the theory of managerial capitalism, the control of the organization resides with the individual or group of individuals with the power to select the board of directors by either mobilizing the legal right to choose them or by exerting pressure to influence their choice (Berle & Means, 1932). The degree of discretion afforded to a manager is defined in terms of the distribution of equity holdings, which is, in essence, the ownership structure of the organization. Although the majority
of managerialists sort organizations into organizations with at least one dominant stockholder (owner-controlled), or organizations without a dominant stockholder (manager-controlled), some studies (i.e. McEachern 1975, 1976, 1978; Salancik & Pfeffer, 1980) suggest that a third distinction must be made to include the dominant stockholder being the CEO as well (owner-managed). Studies using the owner-managed distinction find significantly different results from those that use just manager-controlled and owner-controlled as distinctions for ownership structure. Discretion is differentiated based on whether the organization is manager-controlled, owner-controlled, or owner-managed and the degree of control afforded to a CEO is classified based on the minimum percentage of stock held by the largest single non-management shareholder (Hunt, 1986) or, in the case of owner-managed, by the CEO.

Research on ownership structure has found that managers in management-controlled firms do act in their own self-interests in comparison to owner-controlled and owner-managed organizations (McEachern, 1975; Tosi & Gomez-Mejia, 1989). For example, Walsh and Seward (1990) suggest that managers may make investment decisions that are less optimal for owners, but minimize managerial risk. Furthermore, managers may perform acquisitions and mergers that transfer greater agency costs to owners than necessary (Amihud & Lev, 1981; Ramanujam & Varadarajan, 1989). On the other hand, Lewellen, Loderer, and Rosenfeld (1985) found that managers with a large stake in the organization, a manager-owned organization, were less likely to engage in acquisitions that reduced shareholder wealth than managers in management-controlled organizations.
Outside director ratio. According to agency theorists, the board of directors is considered the primary managerial disciplining mechanism (Fama, 1980; Fama & Jensen, 1983; Jensen, 1983) and that the greater the outsider ratio, the greater the power the board has over the actions of the CEO. Additionally, Hambrick and Finkelstein (1987) agree that outside board members act as constraints on the CEO and suggest that outsiders reduce the power held by the CEO. However, other theories from the field of management, such as stewardship theory, suggest that insiders may play a more important role in the governance of the CEO (Davis, Schoorman, & Donaldson, 1997). This may be true because insiders are privy to information that outsiders may not be able to obtain and insiders have an interest in the organization succeeding, which would suggest they would monitor the CEO more intensely than outsiders. In addition, managerial capitalists suggest that the board of directors is an ineffective control mechanism because of managerial influence over the selection of the board of directors in situations where the ownership structure affords the CEO power to make nominations.

The research on the board of directors as a monitoring mechanism has found evidence to support both insider and outsider dominated boards as means of constraining CEO action. On the one hand, the agency theory research has found that a greater ratio of outsiders will lead to more effective monitoring (Baysinger & Butler, 1985; Coughlan & Schmidt, 1985; Ezzamel & Watson, 1998; Pearce & Zahra, 1992; Rosenstein & Wyatt, 1990; Schellenger, Wood, & Tashakori, 1989). For example, Ezzamel and Watson (1998) found that the greater the board outsider ratio, the greater the profitability of the organization. Thus, a greater ratio of outsiders on the board will lead to a reduction in power for the CEO, which means the CEO will be directed to focus his or her attention
on actions that increase organizational profitability rather than empire building or other actions that do not benefit the shareholders. On the other hand, stewardship theory research has found a positive relationship between inside directors and corporate R&D spending (Baysinger, Kosnik, & Turk, 1991) and the nature and extent of diversification (Hill & Snell, 1988). Thus, a greater ratio of insiders will lead to the constraint of misappropriation of corporate resource. However, in a meta-analytic review of board composition by Dalton, Daily, Ellstand, and Johnson (1998), it was found that board composition did not affect the financial performance of the organization. This suggests that board composition has little affect on reducing the discretion of the CEO whether the board is insider or outsider dominated.

Based on the previous research, it can be concluded that the impact of the board of directors on CEO discretion has not been unequivocally established. However, it is important to note that there is a great deal of research that suggest that board ratio matters when it comes to CEO discretion; thus, board ratio may affect a CEOs reaction to inequity due to the constraints on his or her actions.

**CEO duality.** According to Rechner and Dalton (1991), the expression “CEO duality” refers to a structure where the manager is both the CEO of the organization and the chairperson of the board of directors. The alternative, referred to as an independence structure, describes a situation where different individuals serve as the organization’s CEO and chairperson of the board. The argument is that the board of directors’ central function is to monitor the actions of top management, but allowing the CEO to fulfill both roles compromises this system of checks and balances (Rechner and Dalton, 1991). Because CEOs are seen as self-serving, CEO duality structure leads to both a conflict of
interests and a reduction of the board’s ability to perform its governance functions (Dayton, 1984; Finkelstein & D’Aveni, 1994).

CEO duality is arguably another means of increasing a manager’s power besides stacking the board with inside directors. A manager holding both the CEO and chairman of board position may hold additional influence that will result in less effective monitoring of the CEO’s activities (Dalton and Kesner, 1985) because, according to Mallette and Fowler (1992), duality can firmly entrench the CEO at the top of the organization, which would allow them to challenge a board’s ability to effectively monitor and discipline. Thus, having duality would allow the CEO a great deal of discretion when it comes to decisions concerning the actions of the organization.

However, similar to that of board ratio, the CEO duality literature has found equivocal evidence of the relationship between duality and organizational performance. For example, Westphal and Zajac (1995) found that when a manager holds both the CEO and chairman of the board positions the manager tended to place individuals similar to themselves on the board. These individuals, in turn, are considered more sympathetic to the CEO and his or her wishes because of the similarities they share; therefore, the CEO’s influence and power is even further increased. Rechner and Dalton (1991) found that organizations without duality were able to outperform those with a duality structure. Still, Dalton and colleagues (1998) provide no evidence in their meta-analytic review that there is a relationship between duality and performance. Although the relationship between duality and performance is not unequivocal, it is important to consider duality because it may have an affect on CEO discretion.
Summary

Research on CEO compensation has suggested that we introduce theories new to the literature to help explain CEO actions. One theory that has a great deal of relevance and that has been overlooked is that of equity theory, which suggests that individuals are motivated to react to inequitable situations to make them equitable. CEOs who face inequity, whether it is overpayment or underpayment inequity, may react in ways that affect shareholder wealth. However, how CEOs react may depend on the power they possess in the organization because greater power may afford some CEOs actions that their less powerful counterparts may not have.
CHAPTER 2
HYPOTHESES

Once feeling inequity, a CEO will attempt to correct for that inequity by some action; however, that action will depend upon whether the CEO feels underpayment inequity or overpayment inequity. As stated in chapter 1, underpayment inequity will likely lead to feelings of anger and dissatisfaction (Adams, 1965). In turn, this may lead the CEO to attempt to perform actions that increase the CEO’s outcomes or decrease the CEO’s inputs, which is a major problem for shareholders because, in an attempt to restore equity, a CEO may perform actions that are not in the shareholders best interests. On the other hand, when faced with overpayment inequity, a CEO would feel guilt (Adams, 1965) and in an attempt to restore equity, the CEO may perform actions that benefit the shareholders because the CEO will likely increase his or her inputs, which, in turn, will increase shareholder returns. A CEO may also rationalize the situation to restore equity. This dissertation does not attempt to measure cognitive distortion as a means of restoring equity because psychological data on CEOs could not be obtained. Instead, this dissertation focuses only on the behavioral approaches a CEO can take to restore equity (i.e. changes in inputs and outcomes under the control of the CEO).

Furthermore, it is important to minimize pay deviations from the going rate of compensation for CEOs to avoid facing motivational, retention, and recruitment problems (Ezzamel and Watson, 1998). However, researchers have yet to examine if CEOs experiencing a pay differential will act any differently than CEOs that are being paid the industry norm.
Although there are many actions a CEO may take to restore equity when faced with inequity, those actions may be limited by the power that the CEO possesses. This section formally states main-effect hypotheses concerning CEO reactions to inequity, as well as CEO reactions based on whether he or she has high or low power within the organization. For example, when faced with inequity a CEO may be more or less likely to withdraw from the organization, diversify, or change organizational performance based on whether he or she has the power to do so. Thus, in this chapter I will discuss each action a CEO may take to restore equity and I will make hypotheses concerning those actions.

Furthermore, each of the reactions hypothesized to restore equity are greatly, if not completely, influenced by the CEO. According to Mintzberg (1983), other than the board of directors, no individual or group is thought to exert as much influence on the structure and conduct of the organization as the CEO. The CEO is the individual with the most driving force in the organization; therefore, decisions that emphasize growth, diversification, and performance will ultimately be handled by the CEO. Additionally, because CEO inputs cannot be measured directly, a common characteristic of all CEO compensation studies, it is inferred that the CEO puts forth greater effort to increase organizational performance.

**CEO Reactions to Inequity**

**Organizational Growth**

One relationship that has been widely observed is that of organizational size and CEO compensation (Gomez-Mejia, Tosi, and Hinkin, 1987; Ciscel & Carroll, 1980). One explanation for such a relationship is that larger firms have more organizational levels and as the organization’s hierarchy increases so does the salary of the executives. According to Simon (1957), organizations maintain pay differentials in the form of ratios
between management levels, which suggests that firm size and the number of levels within an organization are highly correlated (Blau, 1970; Child, 1973), with pay increasing for higher-level managers as the hierarchy grows. For example, Mahoney (1979) found that there was a 30 to 40 percent pay differential in compensation between levels of the organization.

Another argument is that as the organization grows, the CEO’s job becomes more complex and his or her responsibility increases, which leads to greater compensation to make up for this increase in complexity and responsibility. Under this assumption, the CEO would actually be increasing his or her inputs by growing the organization. However, Simon (1957) points out that as the organization grows and levels are added to hierarchy, the number of individuals that a given manager oversees stays fairly constant. At the executive level, the number of subordinates are “seldom less than three, and seldom more than then ten, and usually lies within narrower bounds.” Therefore, by increasing the size of the organization the CEO does not necessarily have to put forth more effort because the number of top executives directly below the level of the CEO should remain unchanged. The organization grows through adding levels, not necessarily by adding more individuals to each level.

Therefore, greater organizational size may lead to higher managerial compensation through the added number of organizational levels that come with the added size. Additionally, maintaining an increased size does not necessarily take greater effort as suggested by Simon (1957), while increasing size may take a minimal effort by the CEO to have his or her top managers expand their units through hiring or increasing sales. Thus, CEOs facing underpayment inequity will want to grow the organization in hope
that there will be an increase in their pay. However, this explanation does not imply that as the organizational size grows, organizational performance increases; thus, shareholder interests are not necessarily met with organizational growth. CEOs facing overpayment inequity will not have this same outlook because organizational size does not help shareholders. For overpaid CEOs, increasing organizational size will lead to an increase in their outcomes, which would lead to greater inequity.

Hypothesis 1a: There will be greater organizational growth when a CEO faces underpayment inequity as opposed to overpayment inequity.

Because organizational size and organizational performance are unrelated, there is little reason for shareholders to want or allow CEOs to use organizational resources to change the size of the organization when resources can be used to increase organizational performance. Thus, increases in the size of the organization will be more likely to occur if the CEO has the power to perform actions that will increase the size of the organization or there are good economic reasons to increase the size of the organization. Therefore, when CEOs have discretion and are inequitably underpaid, the CEO will likely choose to increase the size of the organization because of its corresponding increase in pay. The increase in organizational size will restore equity.

Concerning discretion from an ownership structure standpoint, CEOs in manager-controlled organizations have a great amount of discretion because the CEO does not have a large shareholder constraining his or her actions. On the other hand, a CEO in an owner-controlled organization has little discretion because there is at least one large shareholder that is motivated to constrain the CEO’s actions to those that benefit the shareholders’ interests. Thus, there would be an expectation that when comparing owner-
controlled and manager-controlled organizations, those CEOs in a manager-controlled organization have greater discretion and thus have more opportunity to grow the organization to suit their own needs. Therefore, CEOs in manager-controlled organizations will be more likely to increase the size of the organization to reduce underpayment inequity than CEOs in owner-controlled organizations. However, CEOs in manager-owned organizations possess the greatest amount of discretion because they not only run the organization, but also have a great deal of power because of their ownership stake.

**Hypothesis 1b:** There will be greater organizational growth when powerful CEOs as opposed to weak CEOs face underpayment inequity, such that as CEO power increases there will be greater growth.

### Diversification

Although there are many means to increase organizational size to restore equity, such as increasing the number of employees or increasing sales, one policy action that CEOs may pursue to increase size to restore equity is diversification. Similar to the arguments made for increases in organizational size, from an underpayment inequity standpoint, a CEO would be interested in increasing diversification to increase their pay. Diversification is a policy action that will lead to a preferred outcome for an inequitably underpaid CEO because this action will increase size.

Previous research suggests that top managers already have incentives to pursue diversification beyond the level at which shareholder wealth is maximized because diversification is a means of reducing employment risk for managers (Amihud & Lev, 1981; Hill & Snell, 1988; Westphal, 1998). Managers have much more at stake in the organization than diversified shareholders because the organization’s performance has a
major influence on a manager’s human capital from a job, reputation, and career prospects standpoint (Westphal, 1998). Failure can have a large effect on the CEO’s career and severely damage aspects of the CEO’s human capital; therefore, managers use diversification to stabilize corporate earnings and thus reduce the risk of failure.

From a shareholders viewpoint, diversification is not beneficial because of the low cost of portfolio diversification in the capital market (Amihud & Lev, 1981; Levy & Sarnat, 1970). There is little reason for shareholders to want managers to diversify because shareholders can diversify on their own more easily. Additionally, diversified shareholders do not face the human capital constraints that CEOs face and shareholders receive protection from organizational failure through their diversified portfolio, which managers do not enjoy. Therefore, it is in the shareholders best interests to seek ways to reduce the proliferation of diversification.

Although prior research has found that managers favor diversification for the reasons mentioned above, equity theory would suggest that managers who are significantly underpaid would be more inclined to pursue diversification than those managers that are paid similar to or above the industry average. Unlike managers who are being paid similar to or above the industry average, those managers who are being significantly underpaid may harbor feelings of underpayment inequity. In turn, significantly underpaid managers may attempt to use diversification as a means of increasing their compensation to reduce their feelings of inequity.

**Hypothesis 2a:** There will be an increase in total diversification from the previous year when a CEO faces underpayment inequity as opposed to overpayment inequity.
Since diversification is not in the best interests of the shareholders, a CEO with power will be able to affect change in diversification more easily than a CEO with less power. Increases in diversification are less likely to occur when CEOs have less discretion because it may be difficult to get board members to ratify the CEO’s decision. Therefore, ownership structure should play a large role in whether an underpaid CEO will use diversification to restore equity or not. Amihud and Lev (1999) point out that there is greater unrelated diversification in manager-controlled organizations than in owner-controlled organizations, which is consistent with the suggestion that greater discretion allows the CEO to pursue his or her own interests. Once again, CEOs in manager-owned organizations possess the greatest amount of power; therefore, allowing them the most discretion to diversify.

**Hypothesis 2b:** There will be a greater increase in total diversification from the previous year when a powerful CEO as opposed to a weak CEO faces underpayment inequity, such that as CEO power increases there will be greater total diversification.

It should be noted that CEOs may be running a risk of turnover if the organization were to reach levels of performance unacceptable by shareholders. However, it has been suggested that there is a minimum profit constraint rather than an assumption of profit maximization (Marris, 1964; McEachern, 1975), so as long as organizations are meeting some standard of performance, and not necessarily maximal performance, shareholders are satisfied. Thus, CEOs must meet some minimum level of performance to avoid dismissal, which would allow CEOs feeling inequity to perform acts that do not
necessarily increase organizational performance, but increase their compensation (i.e. unrelated diversification).

**CEO Withdrawal**

Research on CEO turnover has focused on how adverse share-price and earnings performance precedes the removal of a CEO (Coughlan & Schmidt, 1985; Murphy & Zimmerman, 1993; Weisbach, 1988). In general, CEOs in organizations who do not meet some standard of performance risk being dismissed or forced into early retirement. However, there are many reasons beyond that of poor performance surrounding CEO turnover; for example, CEOs may leave the organization in pursuit of another position (Comte and Mihal, 1990). Whether through dismissal or withdrawal, CEO turnover is of great concern to shareholders because turnover has a substantial impact on the organization through the cost of replacement.

It is clear that removing a poor performing CEO is important from an organizational performance and shareholder wealth standpoint; however, the board of directors must find a superior replacement if shareholders are to benefit because by replacing the outgoing CEO with someone of lesser ability, the organization risks facing even worse performance than before (Denis and Denis, 1995). A similar situation occurs when the CEO withdraws; he or she must be replaced with someone of equal or greater ability or performance may suffer. This is especially important if the organization is performing well. If the previous CEO was a high performer, the board may have a difficult time finding someone of equal or greater ability to ensure organizational performance does not suffer.

Another problem that shareholders face concerns the horizon problem (Smith & Watts, 1992), which means outgoing CEOs approaching a known departure date
generally make accounting or investment decisions to increase earnings during their tenure at the expense of future earnings (Murphy & Zimmerman, 1993). The CEOs leaving office may focus on short-term performance at the expense of long-term value creation (Dechow & Sloan, 1991), which is a problem for shareholders because shareholders invest in organizations for their long-term value.

Furthermore, shareholders have to worry about market reactions to CEO departures. The market tends to react negatively to announcements of top executive departures, especially when the CEO is dismissed or leaves the organization to take a position elsewhere (Dedman & Lin, 2002). Thus, it is in the best interests of the shareholders to keep CEOs from withdrawing from the organization, especially if the organization is not under performing.

Equity theory research has suggested that one response to inequity would be to remove oneself from the situation (Adams, 1965; Finn & Lee, 1972), which is very costly to the shareholder in terms of replacement, horizon problems, and market reactions. In this instance, if a CEO were to feel a great deal of underpayment inequity when comparing his or her situation with that of peers then he or she may withdraw from the organization in pursuit of a position more equitable, especially in situations where the organization is performing well.

Similar to the arguments made above for the CEOs feeling underpayment inequity, CEOs feeling overpayment inequity may also react to the inequity. Adams (1965) suggests that individuals feeling overpayment inequity are not likely to reduce their outcomes. By withdrawing from the organization a CEO feeling overpayment inequity
would be reducing their outcomes; therefore, CEOs faced with an overpayment inequity situation will be less likely to withdraw from the organization.

**Hypothesis 3a:** Inequitably underpaid CEOs will be more likely to withdraw from the organization than inequitably overpaid CEOs.

A CEO’s decision to leave the organization as a reaction to inequity would be greatly increased if the CEO possessed little organizational power because withdrawal may be the only means to restore equity. Similarly, CEO’s with greater power, those in manager-controlled organizations and owner-managed organizations, will be less likely to choose withdrawal because they possess the power to make organizational decisions that may benefit their compensation. For example, they could more easily use diversification as a means to increase their compensation because the board or the owners may not have as much influence on the CEO’s decision-making. Thus, CEOs in owner-controlled organizations will be more likely to choose withdrawal to restore equity because of their weak position.

**Hypothesis 3b:** In equitably underpaid weak CEOs will be more likely to withdraw than underpaid powerful CEOs, such that as CEO power decreases there will be a greater likelihood of withdrawal.

**Organizational Performance**

As previously mentioned, research in equity has found that individuals who feel under- or overpayment inequity may react by changing their inputs. For example, Greenberg (1988) found that workers assigned to offices that were considered lower or higher in status than their position reflected changed their performance accordingly. Previous research suggests that physical symbols such as office space (Greenberg, 1988), carpeting (Joiner, 1976), and proximity to windows (Halloran, 1978) are recognized as
rewards symbolizing an individual’s status in an organization. Thus, when individuals feel that these symbols are not consistent with one’s status, a feeling of status inconsistency may occur (Stryker & Macke, 1978). In essence, these individuals feel inequity and in turn react accordingly (i.e. reduce or increase their inputs). From a CEO standpoint, organizational performance is a very important reflection of the effort the CEO is putting into his or her organization.

CEOs who are compensated less than other CEOs in their industry may feel underpayment inequity and may reduce their own inputs accordingly. In turn, organizational performance may suffer at the expense of the shareholders. On the other hand, individuals faced with overpayment inequity may be motivated to deal with the situation by either increasing their inputs and are unlikely to reduce their own outcomes; thus, an individual’s reaction to overpayment inequity will generally be to increase their inputs (Adams, 1965). In this case, CEOs faced with overpayment inequity will likely be motivated to increase organizational performance. In turn, the increase in organization performance would lead to a more equitable situation for the CEO and would benefit the shareholders in the form of higher returns on their investments.

**Hypothesis 4a:** There will be increase in organizational performance when a CEO faces overpayment inequity as opposed to underpayment inequity.

Whether the CEO is powerful or not, it would seem intuitive that increasing organizational performance will reduce the overpayment inequity faced by the CEO because the CEO will increase his or her inputs with little effect on their outcomes. However, Hambrick and Finkelstein (1995) found that power not only has a large role on incentive alignment, but it also has a large role on the magnitude of the change in
compensation when performance changes. CEOs in positions of power (i.e. manager-controlled organizations and owner-managed organizations) have found ways to installed asymmetrical incentive plans that increase their pay when performance increases, but does not decrease their pay when performance decreases. On the other hand, CEOs in positions of less power were given incentive plans that decreased their pay when performance suffered, but did not significantly increase their pay when performance increased.

This suggests that CEOs who have power will increase pay if they increase performance, which will do little to restore equity whether they are over or underpaid because both inputs and outcomes would increase simultaneously. However, CEOs with less power will have a small benefit when performance increases, therefore increasing performance would restore equity when the CEO faces an overpayment inequity situation.

**Hypothesis 4b:** There will be an increase in organizational performance when a weak CEO as opposed to a powerful CEO faces overpayment inequity, such that as CEO power decreases there will be greater organizational performance.

**Summary**

Hypotheses were derived about the main effects of how CEOs will react to inequity as well as hypotheses concerning the interaction effects of both weak and powerful CEOs’ reactions to inequity. The hypotheses focus on CEO reactions such as withdrawal, diversification, organizational size, and organizational performance. The next chapter describes the methodology used to examine the proposed relationships.
CHAPTER 3
RESEARCH DESIGN

Sample and Data Collection

The dissertation sample consists of data from 1342 CEOs from 800 U.S. publicly traded corporations for the time period of 1990-1999. The organizations were randomly selected from the Compustat/CRSP data-base and the data is multi-level in nature, consisting of observations across time nested within individuals nested within industries. The hierarchy of the data consists of 30 industries, averaging approximately 45 CEOs per industry, and approximately 5 years of observations per CEO, for a total of 6076 total observations across time. The data is archival and taken from several sources: Compustat/CRSP, Execucomp, and Compact Disclosure data-bases, as well as from company proxy statements, 10-K, annual reports, and Dun and Bradstreet Reference Book of Corporate Management.

Analytical Methods

Hierarchical Linear Modeling (HLM) is the statistical methodology used in this dissertation. Because the hypotheses proposed involve industry-level controls and interactions between individual-level variables and time-level variables, HLM is well suited for the analyses (Raudenbush & Bryk, 2002). Additionally, HLM is able to create empirical Bayes estimates (residuals) from a hierarchical analysis, which will be used to create the independent variable (CEO inequity) to test the hypotheses. Empirical Bayes residuals are used in place of OLS residuals because empirical Bayes residuals can be created when deficient rank data exists (Raudenbush & Bryk, 2002).
HLM is appropriate for three-level nested data where the expected outcome at each level may be represented as a linear function of the regression coefficients and the random effects at each level can reasonably be assumed normally distributed (Raudenbush & Bryk, 2002). Thus, a three-level HLM model will be used to test hypotheses concerning change in organizational size, change in organization performance, and change in diversification. However, since withdrawal is a binary outcome, assumptions of linearity and normality are not realistic. In the case of testing for CEO withdrawal, a hierarchical generalized linear model (HGLM) will be used because HGLM models for binary outcomes using a Bernoulli sampling model and logit link (Raudenbush & Bryk, 2002), which is appropriate for binary outcomes.

See Appendix A for a more detailed description of the statistical methodology as well as the full model specifications utilized to create the CEO inequity variable and for the full model specifications utilized for testing the hypotheses.

**Variable Descriptions and Operationalizations**

This section consists of three parts: (1) the independent variable as well as the moderating variable is described and operationalized, (2) each of the dependent variables is described and operationalized, and (3) each of the control variables is described.

**Independent Variables**

**CEO compensation inequity**

CEO compensation inequity is measured using the unexplained variance from a random-regression coefficients model (an HLM model) with CEO compensation as the dependent variable. CEO inequity is actual pay minus predicted pay based on the population of CEOs in my sample. CEO compensation is regressed on organizational performance, organizational size, ownership concentration, CEO duality, board
composition, whether the CEO’s previous position was inside or outside of the organization, CEO experience (in terms of actual previous position), CEO age, CEO tenure, industry and CEO location to compute predicted pay for a CEO.

Each of the independent variables chosen for creation of the inequity measure was selected due their theoretical relationship to CEO compensation from literature on Agency Theory and Managerial Capitalism as well as their theoretical relationship to equity comparisons from Equity Theory (Adams, 1965). In addition, I controlled for industry, so CEO comparisons would be based on the focal industry their organization competed in. The variables are separated into four categories: organizational variables, human capital variables, corporate governance variables, and CEO labor market/referent variables.

Empirical Bayes estimation is used in place of OLS regression to create the inequity statistic because in some instances there were not enough observations at the CEO level to run an OLS regression due to the large number of variables used to predict CEO compensation. According to Raudenbush and Bryk (2002) empirical Bayes residuals exist for groups even with deficient rank data, which makes this type of analysis attractive in this instance.

CEO compensation in this study will be measured as total compensation. Total compensation, as in previous studies (e.g., Finkelstein & Boyd, 1998; Geletkanycz, Boyd, & Finkelstein, 2001; Gomez-Mejia et. al, 1987; Hambrick & Finkelstein, 1995; Tosi et. al, 2000), consists of cash compensation, long-term incentive pay, stock options, stock grants, deferred compensation, fringe benefits, and pension accruals. Stock options are valued using a modified version of the Black-Scholes (1973) method, which allows for
the inclusion of dividend payments (Murphy, 1985). Furthermore, all long-term contingent pay, including stock options, is valued when granted.

Organizational variables. Both organization size and organizational performance were included in the inequity equation because of their relationship to CEO pay. Tosi and colleagues (2000), in a meta-analysis found that organizational size accounts for a great deal of variance in CEO compensation. Thus, when CEOs make pay comparisons with other CEOs they feel to be similar to themselves, it is important that the size of the organization be controlled for because this may weigh into their opinion as to whether they are fairly or unfairly compensated. Accordingly, CEOs in larger organizations would expect more compensation than CEOs in smaller organizations. Although organization size accounted for much more variance in CEO pay than organization performance, organizational performance does account for some variance in CEO pay (Tosi et al., 2000). Furthermore, organizational performance is an outcome when it comes to a CEO’s input/outcome ratio in comparison to other CEOs. Thus, controlling organizational performance is important when discussing equity comparisons. The measure for organizational size was described in the operationalization of the firm growth variable and the measure for organizational performance is described later in this section.

Because previous research has examined organizational performance from both a ROA and shareholder return perspective, CEO inequity is operationalized two different ways to be comprehensive and cover all aspects of the previous literature on pay and performance. The first operationalization uses CEO total pay and ROA performance and the second operationalization uses CEO total pay and shareholder return.
**Human capital variables.** According to Agarwal (1981), human capital theory suggests that compensation is related to the skills and experiences that individuals bring to their work. Furthermore, Adams (1963) suggests that there are many relevant attributes brought by a party to an exchange and one of which is prior experience. Therefore, both equity theory and human capital theory suggest that a CEO’s managerial skills, which are learned through experience (Castanias & Helfat, 1991; Harris & Helfat, 1997), are important when it comes to compensation and equity comparisons. In addition, Combs & Skill (2003) point out that the research on human capital theory supports that pay premiums reflect CEOs’ superior managerial skills; therefore, CEO prior experience is included in this dissertation by taking into account the CEO’s position directly prior to becoming the CEO.

Each of the CEO’s prior position data was collected (i.e. Chairman of the Board, President, Director, etc.) and then operationalized through a rating system based on the CEO’s previous level within an organization. Four raters with knowledge about organizational hierarchies were asked to rate each position on a scale of 1 to 5, with one being the highest position in an organization and 5 being the lowest in an organization. Inter-rater reliability for the position rating was $\alpha = .83$. Additionally, data on CEO age, tenure, and whether the CEOs’ previous position was inside or outside the organization was controlled for because each of these variables represents a CEO’s human capital (Buchholtz, Ribbens, & Houle, 2003; Kesner & Sebora, 1994).

**Corporate governance variables.** As mentioned in the first chapter of this dissertation, ownership concentration, CEO duality, and board composition are governance variables that represent proxies for CEO power and can affect CEO
compensation (Pollock, Fischer, & Wade, 2002) and possibly equity perceptions. For example, Marris (1964) and McEachern (1975) suggest individuals or groups with significant shareholdings are more likely to exercise influence over the operations of the organization and their compensation. Thus, CEO power must be controlled for when examining equity; therefore, they were included in operationalizations of inequity.

Ownership concentration for the CEO inequity measure was operationalized following the previous research by using a 5% equity-holding threshold to measure ownership concentration (Gomez-Mejia et al., 1987; Hambrick & Finkelstein, 1995; Hunt, 1986; Tosi & Gomez-Mejia, 1989). Following previous conventions, this study sorts organizations into three categories: (1) manager-controlled (MC) firms, defined as no single equity holder owning 5% or more of the organization’s common stock; (2) owner-controlled (OC) firms, defined as organizations with at least one equity holder owning a minimum of 5% of the organization’s common stock and is not a part of management; (3) owner-managed (OM) firms, defined as organizations with a CEO who owns 5% or more of the common stock.

These three categories are measured using dummy variables:

\[ OM \begin{cases} 1 & \text{if the organization is owner-managed} \\ 0 & \text{otherwise} \end{cases} \]

\[ MC \begin{cases} 1 & \text{if the organization is manager-controlled} \\ 0 & \text{otherwise} \end{cases} \]

CEO duality is a measure of CEO power and is defined as whether a CEO is both the chief executive officer and chairman of the board (Beatty & Zajac, 1994; Gray & Cannella, 1997; Rediker & Seth, 1995; Tosi et al., 1999; Westphal & Zajac, 1994; 2001).
More importantly, duality may suggest that the CEO is required to place more effort into the organization because the CEO is also the Chairman of the Board and therefore must assume more responsibilities. CEOs who perform both roles in the organization are required to put forth greater inputs and therefore should receive greater outcomes. Thus, duality is not only important to control for because it may represent power, but also important because it is an input from a CEO’s viewpoint. Duality is measured here as a dummy variable where 1 represents duality (CEO is chief executive officer and chairman of the board), and 0 otherwise.

\[
\text{Duality} = \begin{cases} 
1 & \text{duality} \\
0 & \text{otherwise}
\end{cases}
\]

The composition of the board of directors is measured as the ratio of outside directors on the board, which is consistent with previous research that takes into account board power (e.g., Westphal & Zajac, 1994; 1995). The outsider ratio (OR) is simply calculated by dividing the number of outside directors by the total number of directors.

\[
\text{OR} = \frac{\text{Number of outside directors}}{\text{Total number of directors}}
\]

**CEO labor/market reference variables.** There are two labor/market reference variables, industry and region. Porac and colleagues (1999) state that firms use information from comparable firms within the industry managerial labor markets to set CEO compensation. Industry is measured by grouping firms based upon their dominant business (in this case their 4-digit SIC code).

Location is a key variable when it comes to CEO equity comparisons because CEOs within close proximity to each other may be more likely to make comparisons.
Galaskiewicz (1997) suggested that firm managers are embedded in social systems that exercise social pressure on the individuals. CEOs in large metropolitan areas belong to same social organizations and clubs. For example Galaskiewicz (1985) points out that within the Minneapolis-St. Paul area, CEOs belong to philanthropy organizations as well as area partnerships to further the interests of all businesses in Minnesota, which suggests that CEOs within close proximity may interact more often with each other than with CEOs in other areas of the country. Thus, CEOs in close proximity may be more salient when it comes to equity comparisons. CEO location is measured as a dummy variable based on whether the CEO was within 50 miles of a specific location or not. Based on the number of CEOs within a specific area, 17 location dummies were created. Approximately 65% of the CEOs were located in one of the 17 locations specified.

**CEO power**

CEO power is assessed using ownership concentration. This was a continuous variable where a CEO in an owner-controlled organization possesses the least power and a CEO in an owner-managed organization possesses the most power. CEOs in manager-controlled organizations possess more power than CEOs in an owner-controlled organization, but less power than a CEO in an owner-managed organization. As mentioned previously, CEOs in manager-owned organizations possess the greatest amount of discretion because they not only possess the most influential position in the organization, but also have a great deal of power due to their ownership stake in the organization.

Ownership concentration was the only CEO power variable used to test the moderation between CEO compensation inequity and the dependent variables. As stated in Chapter 1, previous research on both outsider ratio and duality has been questionable
as to whether more or less insiders on the board or whether having both the chairman and CEO positions gives the CEO more discretion, which is not the case for ownership concentration (Dalton et al., 1998).

**Dependent Variables**

The tests of the hypotheses involve the following dependent variables: firm growth, diversification, withdrawal, and firm performance.

**Firm growth**

Weinzimmer, Nystrom, and Freeman (1998) point out that, conceptually, the best way to measure firm growth is \((t_i - t_{i-1})/t_{i-1}\) (where \(t_i\) represents organizational size on any give year and \(t_{i-1}\) represents firm size the prior year) because this is measure of the relative change in firm size. Examining the relative change in firm size is important because large organizations have a greater opportunity to grow than smaller organizations. Larger organizations have greater resources, which can be used to increase the size of the organization; therefore, without taking into account relative size, large organizations would have larger changes in size than small organizations. Therefore, firm growth is operationalized as the change in firm size from year \(t_{i-1}\) to \(t_i\) divided by the firm size at year \(t_{i-1}\).

Because previous studies measuring organizational growth were criticized for focusing on a single dimension of change in size (Birley & Westhead, 1990; Child, 1973; Weinzimmer, Nystrom, & Freeman, 1998) this study uses multiple dimensions to measure size. Firm size is measured as a composite score of the standardized values of total dollar sales and the total number of employees in the firm (e.g., Tosi & Gomez-Mejia, 1989; 1994).
Diversification

The diversification strategy of the firm is operationalized using the entropy measure of diversification (Jacquemin & Berry, 1979). Westphal and Fredrickson (2001) point out that the entropy measure takes into account the number of segments in which a firm operates and weights each segment according to its contribution to total sales, which makes is a good measure of diversification. Furthermore, Hoskisson, Johnson, and Moesel (1994) examined the construct validity of multiple measures of diversification and found the entropy measure to be a valid measure of diversification.

Total diversification is operationalized as

\[ TD = \sum_{i=1}^{N} P_i \ln(1/P_i) \]

where \( N \) is the number of industry segments (defined by the four-digit SIC code) in which the firm is doing business and \( P_i \) is the percentage of firm sales in the \( i \)th industry segment.

Change in diversification is measured as the percentage change in the firm’s diversification strategy between year \( t - 1 \) (when inequity is measured) and year \( t \).

Firm performance

Since previous research examining firm performance has used either market-based indicators or accounting-based indicators of performance, both market-based and accounting-based indicators are used in this study to make it comparable to past research. Furthermore, as Fryxell and Barton (1990) point out, although there are many indicators of performance, it is unlikely that any one adequately captures the concept of firm performance. Fryxell and Barton (1990) also found that these measures do not converge to represent the same construct; therefore, each was measured separately.
The accounting-based measure used here is return on assets (ROA), which has been used in many previous studies (e.g., Finkelstein & Hambrick, 1990; Finkelstein & Boyd, 1998; Hill and Snell, 1988). Although return on assets is not the only accounting-based measure, other measures such as return on equity or return on investment are similarly influenced by net income; thus, using more than just one accounting-based measure would lead to redundancy. ROA is measured as the firm’s net income divided by total assets.

Unlike that of accounting-based measures that reports historical activity by looking to the current income statements and balance sheets, market-based measures are measures that reflect investor perceptions of future financial performance (Fryxell & Barton, 1990). As in much of the previous research that has used market-based measures (e.g., Hambrick & Finkelstein, 1995; Jensen & Murphy, 1990; Murphy, 1985; Salancik & Pfeffer, 1980), this study uses shareholder return. Shareholder return is calculated as

$$SR_t = \frac{SP_t + DPS_t}{SP_{t-1}}$$

where $SP_t$ and $DPS_t$ are the closing stock price and dividends-per-share paid in fiscal year $t$, adjusted for stock dividends and splits. Shareholder return is adjusted to reflect the real rate of return by subtracting the change in the Consumer Price Index ($CPI_t - CPI_{t-1}$) from the formula for shareholder return (Murphy, 1985).

Thus, change in organizational performance will be measured as change in ROA from year $t$ minus $t - 1$ and as change in shareholder returns from year $t$ minus $t - 1$. As mentioned previously, using both measures will make this study comparable to previous research that has used market-based and/or accounting-based indicators of firm performance.
CEO withdrawal

CEO withdrawal is operationalized as CEO turnover controlling for organizational performance and CEO age. Research on CEO turnover has pointed out that many reasons are given for the turnover of a CEO. However, as noted in prior studies, the reasons given by organizations for CEO turnover is generally not reliable; for example, it is rare to cite poor management performance as an explanation for CEO change (DeFond & Park, 1999). Warner, Watts, and Wruck (1988) and Weisbach (1988) found that the most frequent explanation for turnover is retirement and the second most frequent explanation was ‘no reason given’. Thus, scouring the popular press around a CEO’s departure seems to explain little when it comes to the reasons for CEO change and therefore may do little to explain withdrawal from the organization.

Instead, controlling for organizational performance and CEO age will isolate withdrawal, because removal due to performance issues or turnover due to age issues will be accounted for in the model. CEO turnover literature has documented poor firm performance in the years immediately preceding CEO turnover (Murphy & Zimmerman, 1993), which suggests that during poor performance CEOs are more likely to be relinquished from their positions. In addition, many organizations require CEO retire at the age of 65 (DeFond & Park, 1999); therefore suggesting that age plays a large factor in CEO turnover.

Control Variables

Industry

Industry is a key control variable in this study because industry plays a major role when it comes to all the above-mentioned variables. For example, prior research has shown that industry effects have an important impact on cross-sectional variation of firm
performance (Schmalensee, 1985). There is little reason to believe that firms would be similar in the amount of diversification that occurred between industries, firm size, or even the occurrences of duality. When making comparisons it is likely that CEOs will compare themselves to individuals within their own industry because they face similar environmental pressures. Because each industry faces a different competitive environment, there is reason to believe that the industry where the CEO resides plays a large role in the pay they receive.

**Firm performance**

Firm performance is used as a control variable in the analyses for CEO withdrawal. Poor firm performance is cited as a key reason for CEO turnover (Murphy & Zimmerman, 1993); therefore, because CEO withdrawal is operationalized using CEO turnover, controlling for firm performance will take into account the turnover caused by poor performance. See the operationalization of firm performance in the section on dependent variables.

**CEO age**

CEO age is used as a control variable in the analyses for CEO withdrawal. Mandatory retirement at the age of 65 is cited as an important reason for CEO turnover (DeFond & Park, 1999); therefore, controlling for age will account for CEO turnover caused by retirement, which will help isolate CEO withdrawal. CEO age is operationalized as the age of the CEO when inequity is measured.

**Summary**

This chapter explained the operationalization of the independent, dependent, and control variables. Of specific interest are the operationalizations of the CEO inequity
variable, which is the unexplained variance from random-regression coefficients models.

The next chapter will discuss the results of the analyses from HLM.
CHAPTER 4
RESULTS

The simple correlation matrix of the variables included in the creation of the CEO inequity variable is reported in Appendix B. In addition, the simple correlation matrix of the variables included in the test of the hypotheses is reported in Appendix C.

Tables 1 through 4 report the findings of the analyses of CEO inequity’s effects on the various dependent variables as well as the interaction effects of CEO inequity with ownership structure. Given the focus of the present investigation, only the fixed effects and their standard errors are reported. Each table is constructed in a similar fashion, presenting inequity in each of the two possible ways it can be calculated (see previous chapter on the operationalization of CEO inequity). In addition, graphs of the significant and approaching significant interactions are included in this chapter.

Results of Analyses

Change in Organizational Growth

The results from the analyses on change in organizational growth are reported in Table 1. As seen in the table, there is no support for a change in organizational growth when CEOs face inequity whether that inequity is based on ROA or shareholder return as a measure of firm performance. Thus, there is no support for Hypothesis 1a. Furthermore, as seen in the table, there is no support for an interaction effect of power on the relationship between change in organizational growth and CEO inequity; thus, there is no support for Hypothesis 1b.
Table 1. CEO Inequity on Change in Organizational Size

<table>
<thead>
<tr>
<th></th>
<th>Change in Organizational Size (ROA as Performance Measure)</th>
<th>Change in Organizational Size (Shareholder Return as Performance Measure)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CEO Inequity</strong></td>
<td>-.0050</td>
<td>.0053</td>
</tr>
<tr>
<td></td>
<td>(.0652)</td>
<td>(.0526)</td>
</tr>
<tr>
<td><strong>X Ownership Concentration</strong></td>
<td>-.0208</td>
<td>-.0345</td>
</tr>
<tr>
<td></td>
<td>(.0415)</td>
<td>(.0414)</td>
</tr>
<tr>
<td><strong>n</strong></td>
<td>909</td>
<td>895</td>
</tr>
</tbody>
</table>

Change in Diversification

The results from the analyses on change in diversification are reported in Table 2. As seen in the table, there is no support for a main-effect change in diversification when CEOs face inequity whether inequity is based on ROA or shareholder return as a measure of performance; thus Hypothesis 2a is not supported. Furthermore, as seen in the table, there is no support for an interaction effect of power on the relationship between change in total diversification and CEO inequity whether inequity is based on ROA or shareholder return as a measure of performance; thus, there is no support for Hypothesis 2b.

Table 2. CEO Inequity on Change in Diversification

<table>
<thead>
<tr>
<th></th>
<th>Change in Total Diversification (ROA as Performance Measure)</th>
<th>Change in Total Diversification (Shareholder Return as Performance Measure)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CEO Inequity</strong></td>
<td>.0024</td>
<td>.0032</td>
</tr>
<tr>
<td></td>
<td>(.0019)</td>
<td>(.0022)</td>
</tr>
<tr>
<td><strong>X Ownership Concentration</strong></td>
<td>-.0008</td>
<td>-.0028</td>
</tr>
<tr>
<td></td>
<td>(.0036)</td>
<td>(.0034)</td>
</tr>
<tr>
<td><strong>n</strong></td>
<td>917</td>
<td>904</td>
</tr>
</tbody>
</table>
CEO Withdrawal

The results from the analyses on CEO withdrawal are reported in Table 3. As seen in the table, there is support for a main-effect on CEO withdrawal when CEOs face inequity. Whether a CEO bases inequity on ROA as a measure for performance (p < .01) or shareholder return as a measure for performance (p < .05), there is a significant relationship between inequity and CEO withdrawal. In each of these cases CEOs are more likely to leave the organization if they are underpaid; thus Hypothesis 3a is supported.

Table 3. CEO Inequity on CEO Withdrawal

<table>
<thead>
<tr>
<th></th>
<th>CEO Withdrawal (ROA as Performance Measure)</th>
<th>CEO Withdrawal (Shareholder Return as Performance Measure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEO Inequity</td>
<td>-.1281** ( .0347)</td>
<td>-.0602* ( .0280)</td>
</tr>
<tr>
<td>X Ownership Concentration</td>
<td>.0856† ( .0518)</td>
<td>.0705† ( .0416)</td>
</tr>
<tr>
<td>n</td>
<td>933</td>
<td>920</td>
</tr>
</tbody>
</table>

** significant at p < 0.01, two-tailed test
* significant at p < 0.05, two-tailed test
† significant at p < 0.10, two-tailed test

The interaction of CEO inequity based on ROA as a measure of performance and power as well as the interaction of CEO inequity based on shareholder return as a measure of performance and power on CEO withdrawal is approaching significance (p < .10). Graphs of the interactions are shown in Figures 2 and 3. Both Figures 2 and 3 depict that in a situation where the CEO is weak an underpaid CEO will be more likely to withdraw from the organization than overpaid CEO will, while in a situation where the CEO is powerful the CEO is just as likely to withdraw whether he or she is underpaid or
overpaid. However, the interactions are not significant at .05; therefore, Hypothesis 3b is not supported.

![Graph showing CEO Inequity (ROA) X Ownership Structure on CEO Withdrawal](image)

**Figure 2.** CEO Inequity (ROA) X Ownership Structure on CEO Withdrawal

![Graph showing CEO Inequity (Shareholder Return) X Ownership Structure on CEO Withdrawal](image)

**Figure 3.** CEO Inequity (Shareholder Return) X Ownership Structure on CEO Withdrawal

**Change in Organizational Performance**

The results from the analyses on change in organizational performance are reported in Table 4. As seen in the table, there is no significant relationship between change in
organizational performance and CEO inequity based on both ROA and shareholder return as a measure of performance. Therefore, hypothesis 4a is not supported.

Table 4. CEO Inequity on Change in Organizational Performance

<table>
<thead>
<tr>
<th>CEO Inequity</th>
<th>Change in Organizational Performance (ROA as Performance Measure)</th>
<th>Change in Organizational Performance (Shareholder Return as Performance Measure)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.0109 (.0068)</td>
<td>.0212 (.0393)</td>
</tr>
<tr>
<td>X Ownership Concentration</td>
<td>-.0104* (.0052)</td>
<td>.0006 (.0296)</td>
</tr>
</tbody>
</table>

n | 912 | 898 |

* significant at p < 0.05, two-tailed test

Figure 4. CEO Inequity (ROA) X Ownership Structure on Change in Organizational Performance

However, there is a significant interaction (p < .05) between change in organizational performance and CEO inequity when the CEO has more or less discretion and when the CEO bases inequity on ROA as a measure of performance. Figure 4 is a graph of the interaction, which shows that a weak CEO who is overpaid increases
organizational performance while a weak underpaid CEO does not (p < .05). This supports hypothesis 4b. As seen in the graph, when the CEO is powerful there is no difference in the change in performance whether the CEO is underpaid or overpaid.

**Summary**

While it is not surprising to find mixed results given the complexity of the analysis and number of operationalizations of CEO inequity, an examination of the pattern of results may provide meaning to the results of the analyses. The next chapter will discuss the results in detail and the implications of the results.
CHAPTER 5
CONCLUSION

The key premise of a rational compensation strategy is to design, administer, and allocate pay to members of the organization with the objective to improve the organization’s competitive advantage and, ultimately, its financial performance (Barkema & Gomez-Mejia, 1998; Gomez-Mejia & Balkin, 1992). This dissertation examines whether CEO compensation inequity will influence the decisions made by the CEO in an attempt to restore equity and how pay inequity relates to strategic decisions (i.e. change in organizational performance, change in diversification, and change in organizational size) and CEO withdrawal. These strategic decisions as well as withdrawal are important variables because they can negatively or positively affect both the organization as well as the wealth of the shareholders.

Discussion

Perhaps the most important finding is that underpaid CEOs remove themselves from the situation, that is they leave the organization. This is a strong finding because I have controlled for other predictors of CEO turnover such as poor performance and age. On the other hand, I did not find that there were any effects of underpayment on firm growth, firm performance, and growth strategy through diversification or interaction effects between inequity and power on firm growth.

Possibly the most interesting findings show there are interaction effects between CEO pay inequity and power on firm performance. The results of the interactions show that the motivational effects of CEO underpayment are strongest when taking into
account the power that CEOs hold. I assessed CEO power in this study using ownership structure. When CEOs are powerful, there are no effects of pay inequity, whether the inequity is a result overpayment or underpayment. However, I find overpaid CEOs respond to inequity when they are not powerful.

The results show that overpaid CEOs with low power are more likely than their underpaid counterparts to increase firm performance, which is consistent with equity theory. Obviously, improving firm performance would be one way to justify compensation. Overpaid CEOs recognize the need to justify their compensation through improving firm performance, which brings their compensation in line with performance. Unlike their underpaid counterparts, overpaid CEOs will not withdraw because withdrawal may lead to less compensation in their next position.

**Theoretical Implications and Future Research**

There are some theoretical implications of these results for agency theory and the CEO compensation literature as well as equity theory. These results provide a different explanation for the CEO compensation and performance relationships called for by previous scholars (Barkema & Gomez-Mejia, 1998; Jensen & Murphy, 1990). Specifically, the results suggest that agency theory, in the discussion of incentive alignment, should consider equity comparisons. One reason the previous results concerning compensation and performance may have been equivocal is that equity considerations have not been extensively studied in the CEO compensation literature. It may be that CEOs are not only reacting to incentive alignment, but also reacting to under- or overpayment in comparison to their peers.

Porac and colleagues (1999) provide evidence that boards anchor comparability judgments concerning organizational performance and CEO compensation to other
organizations within the focal organization’s primary industry. The conclusion drawn from this industry anchoring is that boards may be considering CEO compensation equity when they anchor their definitions of comparable organizations to the primary industry that the organization competes. However, defining equity is a complex issue that involves more than just focusing on organizations in a similar industry or similar in size as well as performance, which are structural variables that may represent CEO effort (i.e., greater size leading to greater managerial effort). Adams (1965) notes that equity comparisons revolve around not only effort, but also human capital such as age and experience, both of which were variables in this dissertation. Therefore, this dissertation focuses on equity from a different standpoint that includes not only the structural variables used by Porac and colleagues (1999), but also contingency variables such as power and human capital variables. This distinction is important because it is clear that CEOs react to overpayment and underpayment when contingency and human capital variables are considered. Therefore, the results of this dissertation suggest that future CEO compensation studies should take into account more than just industry when considering CEO compensation, future research should also include contingency and human capital variables as well as location.

This dissertation also has theoretical implications for equity theory. The findings are consistent with equity theory, which suggests that individuals will attempt to change their outcome/input ratio when their ratio is different from that of their comparison others. In this case, the comparison others are CEOs in the same industries, within close proximity of each other, facing similar contingency variables as well as having similar human capital such as age, tenure, and experience. The previous equity theory literature
has focused on lower levels of organizations as opposed to top management and has examined equity from an intra-organizational perspective, individuals are generally considered to make equity comparisons with others within the organization. For example, Greenberg’s (1988, 1990) studies on managerial office space and performance as well as compensation reduction and withdrawal have focused on the respective comparisons between lower-level managers and factory workers within the same organizations. According to equity theory, equity comparisons are made between individuals who are similar; however, similarity does not have to be limited by the boundaries of the organization, nor is it restricted to lower level employees. The results of this dissertation suggest that equity comparisons occur not only at the highest level of the organization, but also can be inter-organizational in nature. CEOs make inter-organizational comparisons because there is no one with similar responsibilities or status intra-organizationally.

Future research on CEO reactions to inequitable compensation can focus on reactions that CEOs may be able to take to restore equity that were not examined in this dissertation. For example, research examining top executive compensation has found that the CEO’s salary is dependent upon the salaries of the compensation committee (Ezzamel & Watson, 1998; Main, O’Reilly, & Wade, 1995; O’Reilly et al., 1988). The CEOs feeling underpayment inequity may attempt to change their outcomes by influencing the membership to the compensation committee. Equity may be achieved by replacing lower paid outside members of the board with that of higher paid outside members. Thus, the compensation committee would be made up of higher paid members, which in turn should lead to higher pay for the CEO due to the social comparisons occurring.
Additionally, future research can look into other theories that may help explain equity comparisons and possible changes of referent for the CEO, a limitation discussed later in this dissertation. For example, tournament theory suggests that executive salary structures can be related to a series of tournaments among top executives (Lazear & Rosen, 1981; Rosen, 1986). Lazear and Rosen (1981), in an attempt to explain top executive salary differentials, suggested that it is possible to view the top executives in an organization vying to become the CEO as competing in a tournament. In the tournament process to become the CEO, the top executives give up some of their earnings to increase the compensation of the CEO. In essence, the excess from the top executives’ forfeiture of compensation becomes part of a lottery prize realized in the CEO’s salary. This theory gives a theoretical justification for the very large differences between the CEO salaries and those of the other top executives in the organization. A CEO who attempts to restore equity through changing his or her referent may choose other top executives in his or her organization rather than another CEO because of the tournament comparisons that are already occurring. Although the expectation should be that the CEO receives a greater salary, greater or lesser differentials between the CEO and his or her top managers may lead to feelings of inequity for the CEO.

Managerial Implications

This dissertation has implications for managers as well. The results suggest that CEO pay equity matters to the low power CEO as well as to the firm and therefore should be an important consideration in the determination of low power CEO pay. In determining the CEO’s compensation, the compensation committee must keep in mind that CEOs are aware of and will react to the compensation levels of other CEOs similar to themselves by affecting organizational performance when the CEO has low power.
Additionally, in determining the level of pay of CEOs, compensation committees should realize that underpaid CEOs will be more likely to withdraw from the organization. This dissertation also adds insight into the debate as to whether CEOs are or are not overpaid for their effort. Previous studies have suggested that CEOs are either taking advantage of their position by influencing the board to award excessive salaries (e.g., Finkelstein & Hambrick, 1989; Tosi & Gomez-Mejia, 1989) or that a CEO’s high compensation is justified by their impact on their organization (e.g., Coughlin & Schmidt, 1985; Jensen & Murphy, 1990). Both of these assessments may be correct. According to the data, low power CEOs who are overpaid attempt to make-up for their overpayment by increasing their inputs. Therefore, the data suggests that CEOs in low power situations, where they are less able to influence their compensation, may not be overpaid for their effort because they work harder when they receive higher compensation. However, this does not hold true for high power CEOs who seem not to react to overpayment or underpayment. It may be that high power CEOs do not react to overpayment because they feel the overpayment is justified due to their influence on the setting of their own pay. Therefore, by taking advantage of their high power during the process of setting their pay and with the knowledge that they can affect their compensation when their contract is to be renewed, high power CEOs have little incentive to affect their compensation by growth, withdrawal, or performance.

Additionally, an interesting conclusion can be drawn from the results of this dissertation that may help explain some of the extremely large and continuing increases in CEO compensation over the past two decades. That is, CEOs who are underpaid in comparison to their peers may be attempting to increase their compensation by seeking
positions elsewhere to find other, more lucrative, opportunities. In turn, these reactions may leave other CEOs inequitably underpaid; thus, creating a cycle of increasing compensation as CEOs react to underpayment.

**Limitations**

A limitation of this study is that the equity theory literature suggests that individuals do not react to inequity by just influencing their inputs and outcomes. Individuals can also rationalize their inputs and outcomes through psychological distortion, act against their referent(s), and/or change the referent (Weick & Nesset, 1968). Although it would be unlikely that a CEO would act against his or her referent because of the difficulty of affecting another CEO’s inputs or outcomes, a CEO may psychologically distort his or her inputs and outcomes to restore equity or change their referent. For example, Greenberg (1989) found that workers who were forced to take a pay cut and remained on the job elevated the perceived importance of the work environment features as contributors to their overall payment equity. Thus, they cognitively distorted their inputs to restore equity. By changing their referent, the CEO could select CEOs that make himself or herself feel more equitably compensated or, even, focus on the pay of other top executives inside their organization. This dissertation cannot address the issue of cognitive distortion as a means of restoring equity because the data used for this study was archival and did not address the feelings of inequity experienced by the CEOs. Additionally, it was not feasible to question the CEO concerning his or her referent(s) and therefore could not measure the CEO’s changes in referents.
Conclusion

The dominant view in the literature on CEO compensation, based largely on agency theory, is that by aligning compensation with performance a CEO should guide the firm towards increased performance. One assumption made by this theoretical link between pay and performance is that pay should be viewed in the absolute sense; that is, the alignment of this compensation with performance should be enough to motivate CEOs to increase performance. This limited view of compensation places constraints on the CEO compensation research. In this framework, a CEO who has his or her compensation tied to organizational performance should increase performance even if exceptional performance leads to less compensation than their counterparts who may or may not have their compensation aligned with performance. The result is a view that alignment should increase performance despite what other CEOs receive as compensation because in absolute terms the compensation is high, while in actuality the relative compensation may be low.

The current results suggest that the agency framework overlooks relative compensation. The results strongly suggest the CEO literature should not assume that absolute compensation is the only motivator of CEO action and that relative compensation motivates the CEO. Where the CEO is inequitably paid relative to his or her peers, the CEO reacts accordingly to correct for this inequity. Furthermore, the results show that reactions to relative pay only occur when the CEO has low power, which suggests that low power CEOs lack the ability to affect their pay in the pay setting process unlike their high power counterparts. The present findings warrant the inclusion of relative pay into the framework that guides the CEO compensation research.
APPENDIX A
MODEL SPECIFICATIONS

The operationalization CEO inequity and tests of the hypotheses are multi-level in nature. The independent variables are at the CEO- and industry-levels for the operationalization of CEO inequity. In addition, Murphy (1985) points out that in the case of the analysis of CEO compensation, cross-sectional models are subject to an omitted variables problem, which can be a serious problem because they cannot accommodate variables that should enter the analysis in a lagged manner consistent with their underlying theoretical framework. Thus, to test hypotheses concerning CEO compensation, a three-level model consisting of time nested in CEOs nested in industries is required.

HLM provides a statistical methodology that allows for a simultaneous test of both the CEO- and industry levels for the operationalization of CEO inequity and HLM provides the ability to simultaneously test time-, CEO-, and industry levels. The incorporation of information from all levels leads to a more efficient estimation of the regression coefficient standard errors (Burstein, 1980). The major advantage of HLM is that it provides unbiased and efficient estimates for the regression coefficients and their standard errors, regardless of the magnitude of the dependence among individual responses, due to the nested nature of the data (Bryk & Raudenbush, 1989).

Model Specification of CEO Inequity

For illustration purposes location will be represented by one variable; however, as specified in Chapter 3, location is made up of 17 dummy variables (Washington D.C.,
Dallas, Houston, Philadelphia, New York, Las Vegas, St. Louis, Minneapolis, Ann Arbor, Boston, Chicago, Atlanta, Miami, Denver, Los Angels, San Francisco, and San Diego). Once again, 65% of the CEOs fell within one of these locations.

**Variables**

- \(Y\) – CEO pay
- \(S\) – Organizational size at time \(t\)
- \(P\) – Organizational performance
- \(OM\) – Ownership structure (Owner Managed)
- \(MC\) – Ownership structure (Manager Controlled)
- \(OR\) – Outsider ratio of the board of directors
- \(D\) – CEO duality
- \(A\) – CEO age
- \(T\) – CEO tenure
- \(I\) – Insider (previously held a position inside the organization)
- \(PP\) – Previous position rating
- \(L\) – Location

**Models**

The indices \(i\) and \(j\) denote CEOs and industries where there are

\[i = 1, 2, \ldots, i_j\] CEOs within industry \(j\); and

\[j = 1, 2, \ldots, J\] industries.
Level – 1 (CEO)

\[ Y_{ij} = \beta_{0j} + \beta_{1j}(S_{ij} - \bar{S}_j) + \beta_{2j}(P_{ij} - \bar{P}_j) + \beta_{3j}(OM_{ij} - \bar{OM}_j) + \beta_{4j}(OR_{ij} - \bar{OR}_j) + \]

\[ \beta_{5j}(D_{ij} - \bar{D}_j) + \beta_{6j}(A_{ij} - \bar{A}_j) + \beta_{7j}(T_{ij} - \bar{T}_j) + \beta_{8j}(MC_{ij} - \bar{MC}_j) + \]

\[ \beta_{9j}(L_{ij} - \bar{L}_j) + \beta_{10j}(PP_{ij} - \bar{PP}_j) + \beta_{11j}(L_{ij} - \bar{L}_j) + r_{ij} \]

Level – 2 (Industry)

\[ \beta_{0j} = \gamma_{00} + \nu_{0j} \quad \nu_{0j} \sim N(0, \tau_{00}) \]

\[ \beta_{1j} = \gamma_{10} + \nu_{1j} \quad \nu_{1j} \sim N(0, \tau_{11}) \]

\[ \beta_{2j} = \gamma_{20} + \nu_{2j} \quad \nu_{2j} \sim N(0, \tau_{22}) \]

\[ \beta_{3j} = \gamma_{30} + \nu_{3j} \quad \nu_{3j} \sim N(0, \tau_{33}) \]

\[ \beta_{4j} = \gamma_{40} + \nu_{4j} \quad \nu_{4j} \sim N(0, \tau_{44}) \]

\[ \beta_{5j} = \gamma_{50} + \nu_{5j} \quad \nu_{5j} \sim N(0, \tau_{55}) \]

\[ \beta_{6j} = \gamma_{60} + \nu_{6j} \quad \nu_{6j} \sim N(0, \tau_{66}) \]

\[ \beta_{7j} = \gamma_{70} + \nu_{7j} \quad \nu_{7j} \sim N(0, \tau_{77}) \]

\[ \beta_{8j} = \gamma_{80} + \nu_{8j} \quad \nu_{8j} \sim N(0, \tau_{88}) \]

\[ \beta_{9j} = \gamma_{90} + \nu_{9j} \quad \nu_{9j} \sim N(0, \tau_{99}) \]

\[ \beta_{10j} = \gamma_{100} + \nu_{10j} \quad \nu_{10j} \sim N(0, \tau_{1010}) \]

\[ \beta_{11j} = \gamma_{110} + \nu_{11j} \quad \nu_{11j} \sim N(0, \tau_{1111}) \]

Parameter Interpretations

\[ \beta_{0j} \text{ -- Intercept for industry } j \text{ of the level–1 relationship between CEO pay and all the independent variables. Because of group mean centering, } \beta_{0j} \text{ is an industry mean for} \]
CEO pay when the CEO is in an owner-controlled organization, does not hold the position of chairman of the board, previous position was outside of the organization, and does not exist in one of the locations specified.

\[ \beta_{1j} \] -- Slope for industry \( j \) of the level–1 relationship between CEO pay and organizational size.

\[ \beta_{2j} \] -- Slope for industry \( j \) of the level–1 relationship between CEO pay and organizational performance.

\[ \beta_{3j} \] -- Slope for industry \( j \) of the level–1 relationship between CEO pay and an owner-managed organization.

\[ \beta_{4j} \] -- Slope for industry \( j \) of the level–1 relationship between CEO pay and a manager-controlled organization.

\[ \beta_{5j} \] -- Slope for industry \( j \) of the level–1 relationship between CEO pay and outsider ratio on the board of directors.

\[ \beta_{6j} \] -- Slope for industry \( j \) of the level–1 relationship between CEO pay and CEO duality.

\[ \beta_{7j} \] -- Slope for industry \( j \) of the level–1 relationship between CEO pay and CEO age.

\[ \beta_{8j} \] -- Slope for industry \( j \) of the level–1 relationship between CEO pay and CEO tenure.

\[ \beta_{9j} \] -- Slope for industry \( j \) of the level–1 relationship between CEO pay and whether their previous position was inside the organization.
\( \beta_{10j} \) -- Slope for industry \( j \) of the level–1 relationship between CEO pay and CEO’s previous position.

\( \beta_{11j} \) -- Slope for industry \( j \) of the level–1 relationship between CEO pay and location.

\( \gamma_{00} \) -- Grand mean for change in organizational size.

\( \gamma_{10} \) -- Mean of the industry-specific slopes for the relationship between CEO pay and organizational size.

\( \gamma_{20} \) -- Mean of the industry-specific slopes for the relationship between CEO pay and organizational performance.

\( \gamma_{30} \) -- Mean of the industry-specific slopes for the relationship between CEO pay and an owner-management organization.

\( \gamma_{40} \) -- Mean of the industry-specific slopes for the relationship between CEO pay and a manager-controlled organization.

\( \gamma_{50} \) -- Mean of the industry-specific slopes for the relationship between CEO pay and outsider ratio on the board of directors.

\( \gamma_{60} \) -- Mean of the industry-specific slopes for the relationship between CEO pay and CEO duality.

\( \gamma_{70} \) -- Mean of the industry-specific slopes for the relationship between CEO pay and CEO age.

\( \gamma_{80} \) -- Mean of the industry-specific slopes for the relationship between CEO pay and CEO tenure.
$\gamma_{90}$ -- Mean of the industry-specific slopes for the relationship between CEO pay and whether their previous position was inside the organization.

$\gamma_{100}$ -- Mean of the industry-specific slopes for the relationship between CEO pay and CEO’s previous position.

$\gamma_{110}$ -- Mean of the industry-specific slopes for the relationship between CEO pay and location.

**Model Specification of Tests of Non- Withdrawal Hypotheses**

For illustration purposes, only models for change in organization size and CEO withdrawal will be shown since the models concerning change in diversification and change in performance are similar in nature to the change in organizational size model.

**Variables**

- $Y$ – Change in organizational size
- $CI$ – CEO Inequity
- $OS$ – Ownership Structure

**Models**

The indices $t$, $i$, and $j$ denote time, CEOs, and industries where there are

$t = 1, 2, \ldots, n_{ij}$ time periods withing CEO $i$ in industry $j$;

$i = 1, 2, \ldots, I_j$ CEOs within industry $j$; and

$j = 1, 2, \ldots, J$ industries.

**Level – 1 (Time)**

$$Y_{tij} = \pi_{0ij} + \pi_{1ij} (CI_{(t-1)ij} - \bar{CI}_{(t-1),j}) + e_{tij}$$

**Level – 2 (CEO)**

$$\pi_{0ij} = \beta_{00j} + \beta_{01j} (OS_{ij} - \bar{OS}_{.,j}) + r_{0ij}$$
\[ \pi_{ij} = \beta_{10j} + \beta_{11j}(OS_{ij} - \overline{OS}_j) + \eta_{ij} \]

**Level – 3 (Industry)**

\[ \beta_{00j} = \gamma_{000} + \nu_{00j} \]

\[ \beta_{01j} = \gamma_{010} + \nu_{01j} \]

\[ \beta_{10j} = \gamma_{100} + \nu_{10j} \]

\[ \beta_{11j} = \gamma_{110} + \nu_{11j} \]

**Parameter Interpretations**

\( \pi_{0ij} \) -- Intercept for CEO i within industry j of the level-1 relationship between change in organizational size and CEO inequity. Because of group mean centering, \( \pi_{0ij} \) is a mean for change in organizational size for CEO i within industry j.

\( \pi_{ij} \) -- Slope for CEO i within industry j of the level-1 relationship between change in organizational size and CEO inequity.

\( \beta_{00j} \) -- Intercept for industry j of the level–2 relationship between change in organizational size and ownership structure. Because of group mean centering, \( \beta_{00j} \) is an industry mean for change in organizational size.

\( \beta_{01j} \) -- Slope for industry j of the level–2 relationship between change in organizational size and ownership structure.

\( \beta_{10j} \) -- Intercept for industry j of the level–2 relationship between change in organizational size and CEO inequity controlling for ownership structure.

\( \beta_{11j} \) -- Slope for industry j of the level–2 relationship between change in organizational size and the interaction of CEO inequity and ownership structure.
organizational size and the interaction of CEO inequity and an owner-managed
organization controlling for duality, outsider ratio, and manager-controlled organization.

\[ \gamma_{000} \] -- Grand mean for change in organizational size.

\[ \gamma_{010} \] -- Industry-specific mean for change in organizational size to industry-specific
mean of ownership structure.

\[ \gamma_{100} \] -- Grand mean for inequity.

\[ \gamma_{110} \] -- Industry-specific mean for inequity to industry-specific mean of ownership
structure.

**Model Specification of Tests of Withdrawal Hypotheses**

Because CEO withdrawal was tested using HGLM and required controlling for
both organizational performance and CEO age to isolate withdrawal, the model
specifications look different from those used to test change in size, change in
performance, and change in diversification.

**Variables**

- \( Y \) – Withdrawal (1 = Withdrawal, 0 = No Withdrawal)
- \( CI \) – CEO Inequity
- \( P \) – Organizational Performance
- \( A \) – CEO Age
- \( OS \) – Ownership structure
- \( MC \) – Ownership structure

**Models**

The indices \( t, i, \) and \( j \) denote time, CEOs, and industries where there are

\( t = 1, 2, \ldots, n_{ij} \) time periods withing CEO \( i \) in industry \( j \);
\( i = 1, 2, \ldots, I \) CEOs within industry \( j \); and
\( j = 1, 2, \ldots, J \) industries.

**Level – 1 (Time)**

\[
prob (Y_{tij} = 1) = \frac{1}{1 + e^{-(\pi_{0ij} + \pi_{1ij} (CI_{(t-1)ij} - CI_{(t-1),j}) + \pi_{2ij} (P_{(t-1)ij} - \overline{P}_{(t-1),j}) )}}
\]

**Level – 2 (CEO)**

\[
\pi_{0ij} = \beta_{00} + \beta_{01} j (OS_{ij} - \overline{OS}_{.j}) + \beta_{02} j (A_{ij} - \overline{A}_{.j}) + r_{0ij}
\]
\[
\pi_{1ij} = \beta_{10} + \beta_{11} j (OS_{ij} - \overline{OS}_{.j}) + \beta_{12} j (A_{ij} - \overline{A}_{.j}) + r_{0ij}
\]
\[
\pi_{2ij} = \beta_{20} + \beta_{21} j (OS_{ij} - \overline{OS}_{.j}) + \beta_{22} j (A_{ij} - \overline{A}_{.j}) + r_{0ij}
\]

**Level – 3 (Industry)**

\[
\beta_{00} = \gamma_{000} + v_{00j}
\]
\[
\beta_{01} = \gamma_{010} + v_{01j}
\]
\[
\beta_{02} = \gamma_{020} + v_{02j}
\]
\[
\beta_{10} = \gamma_{100} + v_{10j}
\]
\[
\beta_{11} = \gamma_{110} + v_{11j}
\]
\[
\beta_{12} = \gamma_{120} + v_{12j}
\]
\[
\beta_{20} = \gamma_{200} + v_{20j}
\]
\[
\beta_{21} = \gamma_{210} + v_{21j}
\]
\[
\beta_{22} = \gamma_{220} + v_{22j}
\]
Parameter Interpretations

\( \pi_{0ij} \) -- The log odds of withdrawal for CEO i with mean performance in industry j.

\( \pi_{1ij} \) -- Slope of the log odds of withdrawal for CEO i within industry j of the level-1 relationship when a CEO faces inequity.

\( \pi_{2ij} \) -- Slope of the log odds of withdrawal for CEO i within industry j of the level-1 relationship with organizational performance.

\( \beta_{00j} \) -- The log odds of withdrawal for industry j of the level–2 relationship for ownership structure and CEO age.

\( \beta_{01j} \) -- Slope of the log odds for industry j of the level–2 relationship between withdrawal and ownership structure controlling for CEO age.

\( \beta_{02j} \) -- Slope of the log odds for industry j of the level–2 relationship between withdrawal and CEO age controlling for ownership structure.

\( \beta_{10j} \) -- The log odds for industry j of the level–2 relationship between withdrawal and CEO inequity controlling for ownership structure and CEO age.

\( \beta_{11j} \) -- Slope of the log odds for industry j of the level–2 relationship between withdrawal and the interaction of CEO inequity and ownership structure controlling for CEO age.

\( \beta_{12j} \) -- Slope of the log odds for industry j of the level–2 relationship between withdrawal and the interaction of CEO inequity and CEO age controlling for ownership structure.

\( \beta_{20j} \) -- The log odds for industry j of the level–2 relationship between withdrawal and organizational performance ownership structure and CEO age.
\( \beta_{21j} \) -- Slope of the log odds for industry \( j \) of the level–2 relationship between withdrawal and the interaction of organizational performance and ownership structure controlling for CEO age.

\( \beta_{22j} \) -- Slope of the log odds for industry \( j \) of the level–2 relationship between withdrawal and the interaction of organizational performance and CEO age controlling for ownership structure.

\( \gamma_{000} \) -- The average of log odds for withdrawal.

\( \gamma_{010} \) -- Industry-specific log odds for withdrawal to industry-specific mean of ownership structure controlling for CEO age.

\( \gamma_{020} \) -- Industry-specific log odds for withdrawal to industry-specific mean of CEO age controlling for ownership structure.

\( \gamma_{100} \) -- The average of the log odds for inequity.

\( \gamma_{110} \) -- Industry-specific log odds for inequity to industry-specific mean of ownership structure controlling for CEO age.

\( \gamma_{120} \) -- Industry-specific log odds for inequity to industry-specific mean of CEO age controlling for ownership structure.

\( \gamma_{200} \) -- The average of the log odds for organizational performance.

\( \gamma_{210} \) -- Industry-specific log odds for organizational performance to industry-specific mean of outsider ownership structure controlling for CEO age.

\( \gamma_{220} \) -- Industry-specific log odds for organizational performance to industry-specific mean of CEO age controlling for ownership structure.
APPENDIX B
VARIABLE CORRELATION MATRIX FOR CEO INEQUITY VARIABLES

A simple correlation matrix of variables used in the creation of the CEO inequity variable along with the means and standard deviations of those variables are reported in Table 5. This matrix represents the cross-sectional relationships at the CEO-level.
Table 5. Simple Correlation Matrix of Variables in the Operationalization of CEO Inequity

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>s.d.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Log Total Pay</td>
<td>1340</td>
<td>6.92</td>
<td>1.12</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Outsider Ratio</td>
<td>1270</td>
<td>.72</td>
<td>.13</td>
<td>.24**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>3. Duality</td>
<td>1311</td>
<td>.66</td>
<td>.43</td>
<td>.15**</td>
<td>-.07*</td>
<td>1.00</td>
</tr>
<tr>
<td>4. CEO Age</td>
<td>1308</td>
<td>53.68</td>
<td>8.30</td>
<td>-.10**</td>
<td>.18**</td>
<td>1.00</td>
</tr>
<tr>
<td>5. CEO Tenure</td>
<td>1306</td>
<td>7.81</td>
<td>7.21</td>
<td>-.05</td>
<td>-.22**</td>
<td>.26**</td>
</tr>
<tr>
<td>6. Insider</td>
<td>1286</td>
<td>.72</td>
<td>.42</td>
<td>-.04</td>
<td>-.02</td>
<td>.08**</td>
</tr>
<tr>
<td>7. Org. Size</td>
<td>1329</td>
<td>-.02</td>
<td>1.75</td>
<td>.50**</td>
<td>.21**</td>
<td>.17**</td>
</tr>
<tr>
<td>8. Previous Position</td>
<td>1254</td>
<td>1.71</td>
<td>.56</td>
<td>-.03</td>
<td>-.02</td>
<td>-.03</td>
</tr>
<tr>
<td>9. Man-controlled</td>
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** significant at p < 0.01, two-tailed test
* significant at p < 0.05, two-tailed test
APPENDIX C
VARIABLE CORRELATION MATRIX FOR VARIABLES USED TO TEST HYPOTHESES

A simple correlation matrix of variables used in the analysis of the hypotheses as well as the means and standard deviations of those variables are reported in Table 6. This matrix represents the cross-sectional relationships at the CEO-level—the CEO average was used for those variables that varied over time.

Table 6. Simple Correlation Matrix of Variables Used to Test the Hypotheses

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LIST OF REFERENCES


BIOGRAPHICAL SKETCH

Born in Miami, Florida, and the only son of Chinese immigrants Clement and Lee Loo Fong, I attended public schools and graduated from Palmetto Senior High School in 1994. Prior to attending the University of Florida to obtain my Doctor of Philosophy, I graduated with honors from the University of Florida earning a Bachelor of Science in both management and psychology in 1998.

While at the University of Florida earning my doctorate I met my wife, Mary, with whom I spend my free time. We enjoy exercising, cultural events, and spending time taking care of our cat, Samantha, and lovebird, Lexi. I also enjoy working on home improvement projects, cars, and I am a very avid freshwater aquarium hobbyist. However, my favorite pastime is to sit down, with Mary, on Sunday mornings to read the Gainesville Sun, drink a cup of coffee, and listen to the Top 40 Countdown.